The Builder.

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The Architecture of Greece and Rome.

II.

IN our last article we followed out the treatment of Greek architecture in the work of Professor Anderson and Mr. Spiers; we now come to the Roman portion of the book, prefaced by a short chapter on Etruscan architecture, as supplying part of the origin of the Roman style. The two special points which Mr. Spiers notes as distinguishing the general arrangement of a Roman temple from a Greek one are the mounting of the temple on a platform and the greater depth of the front portico; the latter an Etruscan characteristic. There is also, as instanced in the case of the Temple of Fortuna Virilis, at the early part of the first century B.C., the employment of engaged columns against the wall of the cellar as a substitute for the genuine colonnade. This, says the author, need not necessarily be a Roman invention, as we have the example of the Temple of Jupiter at Agrigentum and that of the monument of Lysicrates. But can either of these be regarded as evincing any deliberate intention on the part of the Greeks to choose this method of decorative architecture? In the Agrigentum example they were merely driven to it by constructive necessity, the scale of the Temple being too large for them to venture on architraves over an open colonnade; and as to the little Athenian monument, it has always seemed to us an open question, considering that the columns are complete in themselves and not merely *appliqués*, whether it was not at first built open, and walled in as an afterthought. It seems impossible to suppose that the Greek mind could have seriously contemplated the use of an applied order as a mode of decoration, unless when forced to this or nothing by special circumstances.

As soon as we come on the Roman scene, however, we are far away from the simple and limited construction of the Greeks; and it is remarkable how the two forms of architecture are representative of the materials available for building. The Greek marble, with its close texture, almost suggested, at least made possible, the fine detail and the frank and unpretentious structure of Greek architecture. The Roman, living in a land of soft tufa and of fine cementing material, developed an architecture suited to the combined capacities of his materials; but as splendour and richness of effect was not to be attained with these materials, veneering with marble was the result, at least for the interiors; a method which answered the immediate purpose but prejudiced the durability of the architectural design, of which only the core survived the lapse of ages.

> "'Brickwork I found thee and marble I left thee,' their Emperor vaunted;
> "'Marble I thought thee, and brickwork I found thee,' the tourist may answer."

The methods employed in Roman construc tion are concisely but clearly described and illustrated in Chapter IX. In the chapter on the Orders as used by the Romans Mr. Spiers gives prominence, in speaking of the Roman Doric Order, to the temple of Hercules at Cora, less popularised in books than others, and approaching much more nearly to Greek Doric than the examples given as typical in books of the orders. Here we have a column and capital very nearly resembling the Greek Doric, save in the presence of a small torus base to the column (probably derived, says the author, from Tuscan services); and the outer triglyph is placed at the angle, as in Greek work, instead of being central with the axis of the column. Mr. Spiers observes that as the Tabularium, the Theatre of Marcellus, and the Colosseum, are all engaged orders, used in a decorative sense, the difficulty of Vitruvius as to the triglyph at the angles never arose; and he suggests that perhaps, after all, Vitruvius's method was never employed in buildings which were actually columnar; but we should not think this likely. The Cora Temple, from its close resemblance to Greek Doric, is probably an early Roman work; and it does not seem likely that Vitruvius would have spoken of the central position of the triglyph as the proper one had it not come into general acceptation in his day. The Romans, no doubt, thought that they were correcting a defect of alignment in the Greek order.

The Corinthian capital is of course essentially a Roman achievement; but when the author observes that in this capital "they masked the bell more effectually than we find in Greek examples," one is tempted to ask—is that an improvement? It is certainly less constructional in appearance, and probably we should feel it so if we saw a pure Roman capital for the first time in comparison with the less completely developed Greek one; but we are accustomed to it by long habit now. The flat section of the leaf in place of the V section is certainly not an improvement. In fact the Roman Corinthian capital is like the Roman Corinthian order generally; exceedingly rich and sumptuous in effect as a whole, but not showing artistic refinement in detail.

There seem to be one or two oversights as to the correction of the press in this chapter; *e.g.* "The carving of the volutes are so much more refined," and we came across some similar errors in other places in the book, which should be looked to in a second edition.

From the details of the Orders we pass to the general grouping and treatment of various classes of Roman buildings. Mr. Spiers's chapter on the Forums follows out the sequence in which the various forums in Rome were built, after the one celebrated irregular enclosure which was the original Forum of Rome. The author draws attention to the difference between the feeling of the Romans and the Greeks in regard to irregularities of site; the Greeks being rather disposed to take advantage of the varying levels of a natural site for the picturesque disposal of their buildings in a manner suggested by the lines of the site; while the Romans, more wealthy and possessed by more of the engineering spirit, levelled their sites, and set out buildings on them on symmetrical and axial lines. This latter preference for axial symmetry is, it is true, essentially an architectural way of looking at things; only the Romans went so far as to make a site symmetrical which was not naturally so, while the Greeks would take a site as it was. Both systems may be defended according to circumstances. The Roman axial system is essential to architectural grandeur of effect and expression; the Greek irregular system sorts better with an architecture distinguished by grace and finish rather than grandeur or great scale; so that each nation perhaps intuitively employed the system best suited to its own architectural aspirations.

While the Romans carried their architecture, in its main characteristics, wherever their armies went, they were occasionally impelled to variations of practice by the nature of the country or of the materials with which they had to deal. Mr. Spiers suggests this as the real cause of the remarkable outbreak of Cyclopean architecture at Baalbec; that the Romans employed the traditional labour of the country, which was Phœnician, and Phœnician architecture was megalithic. The Roman design probably showed a podium of a certain height in plain masonry, without any particular direction as to the scale of the stories; the natives built it in their traditional way, and probably had some rough but effective machinery ready to hand for moving and placing immense blocks. They may however have been too slow about it to please their conquerors, as the megalithic system only extends, after all, over a small proportion of the podium, and looks rather as if it had been indulged in as a kind of bravado.

In speaking of Roman temples, the author notes that it is not always possible, in Roman work, to decide from the style its approximate period of erection. "Some of the architecture of the first century is almost as debased as that of the third century.* It seems to have been a question as to the architect employed;" for in Roman Imperial times at least we have come on the professional architect as having a real existence. The notes on circular temples lead of course to the Pantheon and its history, and M. Chedanne's discovery of its real date, all which is told at some length. In regard to the Roman built-up theatres—it is most characteristic of the Roman nature to take all that trouble and expense to build up the back of the "house" instead of following the example of the Greeks and taking advantage of a hollow site—Mr. Spiers observes that the kind of erection which was first designed simply for utilitarian purposes became one of the finest architectural compositions it was possible to devise; "and, coarse as are the mouldings of the Colosseum and incorrect the relative proportions of the Orders, there is no more impressive monument in the world;" and we quite agree with him. Of course in the Colosseum mere scale, and the grand perspective of the curved lines, are elements in the effect. The author gives a full description of the Colosseum, without going much into the vexed questions as to the actual working of the spectacles. But when he says that the French excavations undertaken in 1810, covered in 1814 and a second time reopened some thirty years ago, "revealed contrivances for raising the wild beasts to the arena level," we must say that the French engineers' drawings and restorations, which can be studied in the British Museum, convey no such idea on their part; they show in their restorations a series of inclined planes for the animals to run up, and justify this restoration by features delineated in their measured drawings of the remains as then existing. We have always considered that the ingenious devices of some restorers for winding up the animals in travelling cages or lifts were absurd; as if a practical people like the Romans would have employed hundreds of men in laboriously winding up animals which could run up of themselves, and only wanted to have their cages opened to do so. We recommend to theorists on the Colosseum the study of the French restoration; it is much more practical and commonsense than the fantastic and unscientific mechanical devices imagined by Parker and others.

In the chapter on the Thermæ, the author suggests that the study of these buildings has a practical value to us now, as examples of the principles to be observed in the aggregation of a number of large apartments of different heights and dimensions, "a problem which at the present day has constantly to be solved, and from this point of view the actual purpose and use of each hall is of minor importance;" though it must be added that the understanding of the purpose and use of all the numerous apartments is a matter of the greatest archæological interest. In regard to the general principle observed in planning the Thermæ, Mr. Spiers maintains, and we think rightly, that the Tepidarium constituted the nucleus and dominating motive of the whole plan. The Tepidarium, rising much higher than the adjoining halls, was lighted by a clear-story above their level; and the same principle is carried out in subordinate portions of the buildings, the larger apartment of a group rising higher than the rest and being lighted above their roofs. Mr. Spiers also touches upon an interesting point in regard to the actual constructive value of the columns in such buildings as the vaulted halls of the Thermæ, which he thinks have been too hastily assumed to be merely decorative in consequence of the fact that in the Basilica of Constantine the puzzolana concrete has held up the vaults in spite of the support of the columns being removed; but he maintains that "this is exceptional; as a rule all the larger columns carried floors or vaults, and their removal has been fatal;" a conclusion which, if established, removes one considerable reproach against the Roman architects.

The succeeding chapters of the book describe the Triumphal arches, the palaces of the Cæsars (the latter illustrated by an elaborate plan from M. Deglane's restoration); Hadrian's Villa, tombs, aqueducts, and private houses, with an added chapter on Pompeiian interiors and decoration, as affording the fullest information we have in regard to the Roman house. In speaking of Spalato, Mr. Spiers questions whether its importance, as an example of the decadence of the Classic columnar style and the first hint of an arched style, has not been exaggerated, as the west front of the Propylæa at Damascus (151 A.D.) shows the incident of the arch springing from the two central columns of the portico, and the entablature design carried round it; capitals carrying an arch without an intervening entablature are found in Pompeii; "and the accentuation of the Roman relieving arch over a lintel, by enriching it with mouldings, is found in the second century in Asia Minor and Syria." It might have been well to give an illustration of one of these examples.

A short glossary of terms used in Greek and Roman architecture is given at the end of the book, followed by a list of books relating to Classic architecture, most of which have been consulted in the preparation of the present volume. As a comprehensive *résumé* of the history and characteristics of Greek and Roman architecture this must certainly be considered to be the best one-volume work of its kind that has yet appeared in our language, and one which should be interesting to educated readers generally, as well as to those who are in a special sense students of architecture.

*"As in that of the third century" it stands in the book; another grammatical oversight.

ITALIAN NOTES.

THE recent visit of the Emperor William II. to Italy has been marked by a curious manifestation of his interest in matters artistic. After visiting the King of Italy and the Pope in Rome, he was accompanied by the former on an excursion to the Abbey of Monte Cassino, for the purpose of viewing the artistic labours of the modern Benedictines who inhabit that famous seat of ancient learning. Attended by all the stately display which naturally accompanies the presence of an emperor in company of a king, the two monarchs paid a hasty visit to the newly-decorated buildings on May 5, and the Emperor not only expressed his approval in complimentary speeches about the famous institution of the Benedictine Order and its motto, "Ora et Labora," but also presented the Abbot with the substantial proof of his approbation in the form of a subscription of 10,000 marks (500*l.*).

The Benedictine Abbey of Monte Cassino would seem to be largely in the hands of German monks at the present day; at least the leading spirits in the community belong to that nationality. The abbot is a certain Padre Krug, who has passed the last forty years in Italy; the principal decorator is a monk named Padre Desiderio Lenz, a native of Bavaria, who is chiefly working at present on the mosaics and other details of the "Camera di San Benedetto."

Perched upon a hill so high above the nearest railway station that the heart of the average tourist rather sinks within him at such a climb, the abbey presents nothing of interest to the distant view, and a nearer approach reveals very few traces of any of its numerous rebuildings, or the extreme antiquity of its foundation. The present buildings are of the seventeenth century and still later; only a very few plain and unpretentious portions can claim to have anything venerable about them, and their designations are, of course, merely legendary. Within this very uninteresting building (speaking from an artistic standpoint) there is, however, a very vigorous effort being made to revive those artistic traditions which were specially identified with monastic institutions during the Middle Ages. Photographs have been published of various portions of the new works in progress, which were initiated more than a dozen years ago by the decoration of a chapel in the tower called "di San Benedetto," a fragment of the more ancient buildings which is piously believed to date from the original monastery of A.D. 529.

The style of work which has been adopted in this important modern monument is rather peculiar, and may almost be considered to have a special *cachet*. It is unlike much of the modern "Gothic" or "Classic" with which the world has been inundated throughout the nineteenth century. The effort has evidently been to revive the characteristics of the usually barbarous style of what are known as the dark ages, that is to say, of a period at least preceding the days of Giotto and Pisano. Such an attempt has a certain novelty about

it when it is carried out on the scale and with the determined intention which seems to mark this modern Benedictine community.

Judged by ordinary standards, the decorations at Monte Cassino must fail as works of art, because they do not display the ordinary knowledge of technique and school-of-art study, which it would seem ridiculous to ignore, as necessary at the present day, in works of a monumental character. They can, therefore, only be considered as expressing a desire to return to some primitive ideals, in protest against all that is modern in art and modes of thought. Such a style of art is, perhaps, more easily adapted to mosaic work than anything else, and, perhaps, with this idea the German Emperor criticised what he saw at Monte Cassino as being "a restoration of the mosaic art particularly suited to the austere mysticism of Religion." The numerous very low-relief sculptures which the monks are also executing have rather too much the appearance of poor copies of an imperfect type of art, but they are, at the same time, too rigid and precise in detail and design to deceive the student of old work. Monte Cassino will become an interesting monument of revived art in the cloister, and of the great religious enthusiasm of modern times. Its boneless saints and flat decorative figures, its mosaic backgrounds and "austere mysticism," will represent an earnest protest of these latter years against the naturalism of worldly art, and as such it will always attract the admiration of certain minds. As art pure and simple, its chief interest lies in the fact that here in central Italy, removed from the ordinary influences of modern society, almost a school of ecclesiastical art has come into being for the purpose of executing architectural sculpture and decorations in the style of a period long before the "Great Masters" had any existence. The new Benedictine art-development may be considered a success chiefly in as far as it displays an enthusiastic spirit amongst the workers—a spirit such as animated the Munich school of Cornelius and Overbeck in the middle of the last century. It is very reminiscent of that famous old Munich school; but with the difference that the German artists of fifty years ago were not so archæologically inclined as their modern descendents who live under the rule of St. Benedict.

The foundation stone of the new Campanile of St. Mark, in Venice, was laid with much ceremony and jubilation on St. Mark's day by the Count of Turin. This ceremony has been hurried on in rather a premature way by the party which insists upon the restoration, but for the present the project seems somewhat vague, and it is not yet settled whether the restored tower is to be carried up to the full height and design of the original. It is understood that the Government will be responsible to the amount of 3,000,000 lire, the half of which has already been subscribed by the public.

In other parts of Italy very little of artistic importance has taken place during the last few months. The Cathedral of Florence has been completed as regards its modern exterior by the setting up of the great central door of bronze in the west front. This immense doorway (about 26 ft. high by 13 ft. in width) is the work of Agosto Passaglia, a pupil of the celebrated Florentine sculptor, Duprè. It is a very ordinary production of the style of fifty years ago, and hardly calls for criticism. In Italy, the "Gothic" reproductions of the nineteenth century are, perhaps, more utterly inept and generally unsatisfactory than in any other country. At a time when Pugin in England, or Viollet-le-Duc in France, were showing what could be done in reproducing the styles of the Middle Ages, the Italians were content with the most deplorable pasteboard imitations of their own mediæval work—imitations which even a theatrical scene-painter might have been ashamed of. It is remarkable that even at the present day this pasteboard "restoration" style should still survive and be admitted into the most important public monuments. The exterior of Florence Cathedral, which has been rebuilt to all intents and purposes during the last hundred years, may now be considered as a truly grand example of nineteenth-century Gothic. Its concluding detail is this great west door, with its artless academic bas-reliefs under weakly-designed "Gothic" canopies, its perfect execution and mechanical lifelessness of effect. The work has cost the not inconsiderable sum of 125,000 lire (5,000*l.*), and the weight of metal employed amounts to 12 tons.

NOTES.

The News from Knossos

WE seem to have by no means come to the end yet of the surprises which the Palace of Minos has in store for us. Mr. Evans's long letter in the *Times* of the 5th inst. described the discovery of a new and important residence, apparently a kind of royal villa, at a little distance from the main palace, and of which, as it was partly on the side of a hill, nearly the whole upper story can be made out. We also hear of the discovery of King Minos's private theatre in the great palace, with a tier of stepped seats looking down on a small paved area. A day or two later, however, Mr. Macmillan communicated to the *Times* the account of another find, which was considered sufficiently sensational to be the subject of a telegram, consisting of decorative objects in porcelain, including vases, inlays, reliefs, and especially a number of figures, about a foot high, showing complete and minute representation of costume. We are not told whether these figures have the false and unnatural thinning at the waist which is shown in the painted figures. But this whole excavation is a more remarkable inlet into the remote past than was furnished even by Hissarlik. Whether the enterprising archæologists who have carried out the excavations have not gone a little too fast in already discriminating and tabulating the successive schools and phases of "Minoan Art" may perhaps be questioned. But they have gone far to show that events which have long been regarded as mythical may be transferred to the domain of history.

The Metropolitan Fire Brigade.

HAVING from time to time commented upon the serious loss of life in the Metropolis, and also on the great wastage of property, in such conflagrations as those of the Barbican and Cripplegate fires, we would call the attention of the London County Council to the necessity of utilising the opportunity of the impending change of command to consider the advisability of placing the Brigade in the hands of an official who would be more in touch with the structural aspect of the Metropolis than a naval or military officer. The problems of life-saving, of fire-extinction, and of precautionary measures against fire are becoming more and more subjects demanding a thorough constructional education. Life-saving and fire-fighting are no longer solely matters of routine, discipline, and pluck. It is essential that the command should be in the hands of one who, whilst being a good disciplinarian, will thoroughly understand the architectural and engineering requirements of his position. The firemasters in Scotland, who fulfil similar functions to those of our Chief Officers, pay far greater attention to constructional questions than has been the case in London. Some of the great provincial centres in England likewise have already understood this side of the problem of reducing the annual fire waste; and in Northern Europe such appointments are now usually given to either surveyors, engineers, or members of the constructional branch of the Army.

Lessons from a Fire.

FROM the report of the Insurance Company's inspector on a recent fire in the Roosevelt Building, New York, some useful lessons may be learned by those who have not yet acquired the knowledge supposed to be possessed by the insurance engineer. The building is defined as being of the class "commonly designated as fireproof buildings with unprotected ironwork occupied for mercantile and like manufacturing purposes." One satisfactory feature is that the first warning was afforded by an automatic alarm, an appliance of which we seem to hear very little in Great Britain. The fire spread very rapidly, ascending the central staircase and elevator shaft, and entered each of the floors above. In parts of the sixth and seventh floors, some 2 in. hollow tile plastered partitions succeeded admirably in arresting the flames, but the eighth floor, having no such partitions, suffered very severely. Five of the cast-iron columns supporting the roof broke off clean, 2 ft. from the top, and all the others were badly warped, as well as part of the outer framework, where the protection was knocked off by the falling roof beams. These beams caused other injury, some falling through the eighth floor and deflecting the seventh floor, while another part fell upon the stair landing, and descended to the bottom of the building, carrying away all the landings in succession. The ironwork in the sixth and seventh floors is generally good, and structurally the building has not been much injured below the eighth floor. Damage to the exterior walls is slight, but if they had been of stone it is thought that the loss would have been much greater. The lessons to be learned may be thus briefly summarised:—(1) That vertical openings not thoroughly enclosed in fireproof material constitute an extremely vital defect, making an otherwise well-designed building practically at the mercy of any fire when once fairly started; (2) That unprotected ironwork is thoroughly dangerous; and (3) That the provision of two stairways is imperative for the safety of occupants and for the use of firemen. In the present case, if the ironwork had been protected, and the vertical

openings adequately enclosed, it is tolerably certain that the fire would not have spread beyond the floor on which it broke out.

Direct and Indirect Underpinning.

No less than four distinct modes of underpinning are exemplified in a description recently given by the *Engineering Record*. The foundations of a wall, 75 ft. long, forming one side of a six-story building, had to be removed and carried down several feet to the sandy bottom of a new excavation, rendered necessary by the erection of an adjoining building. The wall was temporarily carried by needle-beams, resting at one end on sills laid on the cellar floor, and supported at the other by a series of posts, inserted after the wall had been lifted bodily by screw-jacks. Brick piers were next built up between the needles from new footings to take the weight of the old wall, and after removal of the needles the remaining brickwork was added, the whole being wedged up and thoroughly grouted. The corner of the front wall was supported entirely from the inside by a horizontal timber cantilever, of which one end was inserted and wedged into a recess cut in the brickwork, and the other end reacted against a post wedged across the under side of several joists in the basement floor, while the fulcrum was furnished by a set of the needle beams already mentioned. At the opposite end of the building the corner was similarly supported. Another ingenious piece of work in the same building was the support of a heavily-loaded stone pier, 4 ft. square, by means of two cantilevers, the short arms of which were secured to the pier by steel pins, and the reaction of the long arms was taken by posts wedged up against distributing beams across the under side of the floor above. In this manner the pier was safely supported so as to permit the removal of the footing and the building of a new foundation. At one part of the side wall a stone pier, 2 ft. square, had to be underpinned with the wall. It was difficult to secure bearings for temporary supports, and unsafe to cut away material for the insertion of a needle beam. Therefore, a pair of steel pins were inserted horizontally to take bearing upon one of the main needles, and the other side was supported by the aid of a cantilever placed below the foot of the pier in a notch cut into the foundation, the long arm of the cantilever reacting through a post wedged against the basement floor-beams. By these simple devices one side of the building was rendered independent of the old foundations, and it naturally follows that if any subsidence had been feared it would have been perfectly easy to guard against injury by jacks acting between the posts and the various supporting beams.

Cleaning Steel by Sand Blast.

HOWEVER excellent may be the qualities of a paint, it is impossible to expect that it will be effectual in protecting steelwork, unless the mill scale, rust, dirt, and grease have previously been removed. After leaving the rolling mill, steel is often stored in exposed positions for a considerable time before use, so oxidation progresses to such an extent that cleaning with wire brushes is not sufficient to permit the paint to come into immediate contact with the metal. When specifications demand the sand-blast cleaning of structural steel, rolling-mill proprietors and structural engineers will provide the necessary equipment, as they have now provided modern drilling-machines for drilling holes instead of punching them. At present, competition prevents any industrial firm from taking the lead, and the purchaser must pave the way for any reform of the kind. There are very few records showing the results of sand-blast cleaning on an extensive scale, and a paper on the subject, lately read before the American Society of Civil Engineers, will therefore be read with considerable interest. The author gives an account of the experience gained in the cleaning of more than 135,000 sq. ft. of railway viaducts at Columbus, Ohio, and describes both the apparatus used and the methods of procedure. From one of the tables it appears that the cost averaged about 1½d. per square foot, including the cost of trestles, flagmen, and time wasted by interruptions. It must also be observed that the viaducts were generally covered with heavy rust and several layers of old paint. In new work the expense would, of course, be much less. The surface of the steel was cleaned bright, so that it had the appearance of frosted silver, and paint put on a year ago still holds on firmly, being to all intents and purposes as good as when applied. In matters affecting the future safety and durability of buildings, there is nothing like beginning at the proper place with precautionary measures. With structural steel, the proper thing undoubtedly is to be sure that the metal is quite clean before any paint or other protection is applied.

Electric Light Stations.

A PAPER on the design and arrangement of electric light stations was read by Mr. Ernest Matthews to the Society of Engineers on Monday night.* The author illustrated his paper by drawings of the Bridlington Electricity Works, and so his remarks had reference mainly to the design of small stations. His statement that one-seventh of the roof of the engine-house should be skylight was criticised in the subsequent discussion, it being contended by one speaker that this would be insufficient in a smoky town, and by another that on a hot summer's day it would be unbearable. Another point which called forth some criticism was the statement that the floor-level of the boiler-house should be several feet below that of the engine-house. In some cases this may be convenient, but it is not always advisable. American engineers often place the boiler-room over the engine-room, and the coal-bunkers over the boilers. This arrangement is sometimes used in this country—for example, in the power station of the Bristol Tramway Co. The remark that every material of an inflammable nature should be omitted as far as practicable from the building is hardly consistent with the use of matchboarding for the temporary end of the engine-house. The remarks on the wind pressure on the chimney-shaft were not very scientific, the data given by Rankine and Molesworth being quoted, whilst Buchetti and recent Continental practice is ignored. The greatest danger from wind-pressure does not arise from the maximum pressure during a gale, but from the danger of sudden gusts synchronising with the natural period of oscillation of the shaft. Rough empirical formulæ are given for the height of a chimney-shaft required to burn a given amount of fuel per hour, but no formulæ are given for the area of the cross-section required. The rules of the London County Council as to the heights of shafts are also quoted. We do not think, however, that these were fixed so as to produce the most suitable draught for a given consumption of coal, but rather so as to prevent them being a nuisance to the neighbourhood.

* A résumé of the paper will be found on another page, under the heading "Engineering Societies."

The Institution of Gas Engineers.

THE annual general meeting of the Institution of Gas Engineers has been held this week in London. On Wednesday morning a lecture on "Calorics and Candles," in which was discussed the relationship between the heating power and the illuminating value of gas, was delivered by Professor Vivian B. Lewes. The lecturer stated that when using non-luminous water-gas and an ordinary Welsbach mantle he obtained light of 158 candle-power when the gas was consumed at a rate of 8·15 cubic feet per hour, which is equivalent to 19·3 candles per cubic foot. With coal-gas the average result yielded by the same mantle may be taken as 80 candles with a consumption of 4 cubic feet per hour, or 20 candles per cubic foot. The lighting efficiency of coal-gas as commonly used at the present time is, therefore, practically the same as that of water-gas, although the heating value of coal-gas is twice as great as that of water-gas. Professor Lewes also showed a Welsbach mantle heated to incandescence by producer-gas. In spite of the fact that the producer-gas had a heating value which was less than one-third that of coal-gas, the mantle emitted a light of 150 candle-power. It is true that the gas had to be consumed at a rate of 30 cubic feet per hour, and that the efficiency was therefore only 5 candles per cubic foot, but it is evident that the statement that Mond gas and Dowson gas cannot be used for incandescent lighting is incorrect. Among the papers read before the Institution was one by Mr. S. O. Stephenson on "The Lewes Process at Tipton," in which it was shown that the process of passing water-gas through coal-gas retorts while the coal is being carbonised has been brought into daily use at Tipton, and has resulted in a larger yield of gas from the coal and a material reduction in the cost of manufacture. An interesting paper by Mr. Walter Grafton dealt with the methods of testing low-grade gas for illuminating power.

The Engraving and Etching Exhibition.

THE historic exhibition of English engravings and etchings in the first floor galleries of the Indian Section at South Kensington Museum is admirably arranged and very complete as a representative collection. The nucleus of the collection has been made by a selection of engravings and etchings from the Art Library in the Museum, supplemented by loans from private owners. The exhibits are classified in successive bays in chronological order, commencing with line engravings of the sixteenth and seventeenth

centuries, where one can see examples of the careful and laborious but rather mechanical line-engraving of this early period, as exemplified in such work as that of Elstracke and others. With the second bay we come to the etchings of Hollar and the engravings of Faithorne, and in the third bay to the mezzotints of the latter part of the seventeenth century, among which is an example (lent by the King) of Prince Rupert's remarkable plate known as "The Great Executioner"—"great" as to size merely, to distinguish it from the small work called also "The Executioner." Further examples of mezzotint and line engravings of the eighteenth century follow in the two next bays; in the latter there are several examples of that conscientious worker Woollett, somewhat prosaic in style and feeling, but exhibiting, as in "Roman Edifices in Ruins" (146: after Claude) that careful management of line which gives such a value to his work, in which every detail, though copied, is in a sense designed afresh by the engraver; a more solid and intellectual type of work than mezzotint, though it has not the breadth and softness of effect of the latter. Some of the subjects have a historical interest apart from the artistic merit of the engraving; Rooker's "Scotland Yard," for instance, dated 1766; while Sharp's engraving of West's "King Lear" shows what sort of melodrama a R.A. of the period could consider as a worthy illustration of Shakespeare. In another bay Elizabeth Judkins's "Mrs. Abington" is a singularly fine mezzotint after Reynolds; while in bay 12 two reproductions of Reynolds's "Venus" (lately at Messrs. Lawrie's gallery), a stipple by Collyer and a line engraving by Raimbach, show how little reliance is sometimes to be placed on the accuracy of an engraver; for the two, taken from the same picture, differ materially; Raimbach's line is the best and most artistic of the two. In the bays devoted to more modern productions we have of course many works which are original art and not reproductions, many of them well known. Among the later engravings it is remarkable how exactly Cousins's style suits the character of Lawrence's pictures; Cousins seems to have been created to engrave Lawrence. The best original etchers of to-day are well represented in the collection.

Punch at the Woodbury Gallery.

WHILE we have at South Kensington this retrospective exhibition, a modern development of work in black and white is illustrated in the exhibition at the Woodbury Gallery in Bond-street of "Original Pictures from *Punch*" ("for *Punch*" would be more correct). The humour of the situations is, of course, part of the attraction in an exhibition of this kind; but from the purely artistic point of view it is interesting to see all this work in various styles of black and white in its original form and scale, before being reduced down to the size required for publication. Mr. Halkett leads off the show with drawings which, with the exception of the pencil sketch of Herr Richter, are rather mechanical in the use of line; there is much greater freedom in the style of Mr. Armour, who follows him. Mr. Phil May is represented by half a dozen drawings, of which the best is No. 17, "The Tourist and the Oldest Inhabitant," a capital strong piece of line drawing. Among those of Mr. Boyd No. 24 is worth special attention. Mr. Charles Harrison's sketches of the Arctic railway station and of "Life Under the Sea" (41 and 42) are admirable examples of the *reductio ad absurdum*, the latter especially, in which the resemblance to human figures and surroundings in fish form is very cleverly carried out. Mr. Bernard Partridge is very largely represented, and his are among the finest drawings, both for point and meaning and for power of design; especially "A Short Memory" (69) and "After the Coronation Revels" (81). Mr. Reed's extravaganzas are very good; Mr. Maybank gives delightful fairy pictures, and Miss Wallace-Dunlop three little studies of children and their ways. Mr. Linley Sambourne naturally occupies a large space in the collection; perhaps the finest of his contributions is "Costume and Cost" (177).

The French Gallery.

AT the French Gallery in Pall Mall a point is made of the exhibition of four pictures and a number of sketches and studies, chiefly in pencil, by Professor Menzel, a painter who has achieved a wide reputation, and received a great many honours, in virtue of a talent for realistic execution which appears to be totally unaccompanied by any feeling for beauty. We confess that we have never been able to understand the fuss that is made by art critics and dealers about Herr Menzel's work. His large picture (large comparatively speaking) of "Market Day, Piazza d'Erbe, Verona" (2), is what we call an utterly prosaic style of art, and the sketches and studies come under the same category. Thinking of the beauty of pencil studies and sketches by Leighton and other artists one could name, these seem merely coarsely executed memoranda with no interest beyond that of their use to the painter as such. The only thing that is really pleasing among them is the small-scale portrait, No. 34, which shows a remarkably conscientious finish of the head, with more refinement of style and feeling than is seen in the oil paintings. The gallery contains also a miscellaneous collection which includes some fine and interesting works—several small landscapes by Corot and Daubigny; a "Fête Champétre" by Monticelli, which for the first time enables us to understand why some persons profess an admiration for this artist, whose pictures in general suggest the idea of being puzzles in worsted-work, but in this one there is style and a certain beauty of its own; there are two good pictures by Jacques, of which "L'Abreuvoir" is the best; "La Toilette" by Fantin-Latour, one of his figure-pictures which seem to radiate light and colour; a fine cattle picture by Troyon; two architectural interiors by Herr Bosboom, who has achieved the faculty of indicating a great deal of architectural detail and texture in a very slight method of execution; and a sea-painting by Isabey, "Running for Shelter," which shows that the French in his day were no better marine painters than they are now.

Dudley Gallery Art Society.

THE Summer Exhibition of the Dudley Gallery Art Society contains much pleasant and pretty work in water-colour, but not very much that claims higher praise than that. Among the works that have more individuality of style and subject are Mr. Lexden Pocock's "The Stile on the Common" (80), in reality a foreground study of gorse with distance seen through it; and Miss Jex-Blake's "A Still Day at Rye" (81), a picture which recalls Crabbe's descriptions of bare and rather melancholy coast scenery. Others that may be singled out are Mr. Stormont's "Road to the Shore" (77); Mr. Roscoe's "Summer Afternoon on the Exe" (93), the broad estuary of the Exe with the water blue in the sunlight; Miss Bernard's "Harfleur Quay" (142); Mr. Standen's "A Riviera Valley" (163), recalling the pretty but rather mannered style and finish of Birket Foster; Mr. Aldridge's "The Coast of Devon" (201); Mr. Walter Severn's "Gorse at St. Jean de Luz" (208), a foreground study backed by the silhouette of a distant hill; Mr. George Marks's "A Sandpit" (235), quite one of the best things in the room; Mr. Stannard's "The Green Mill" (244), in which the wooden windmill, painted a decided green, gives a curious and unusual touch of colour to the landscape; Mr. Coleridge's "Clovelly" (249), showing a bird's-eye view of the little port from the high ground; and Mr. Duassut's "A Wiltshire Cottage" (253). Mrs. Sydney Bristowe's two life-size heads (1 and 20), executed in broad washes, are rather a new style of work in this exhibition, and are clever and artistic in execution, though little more than sketches on a large scale.

Silver Work and Enamel.

AT Messrs. Dowdeswell's Galleries there is an exhibition of work in enamel and gold and silver, by "Nelson and Edith Dawson," which includes among other things the beautiful triptych that was at the Arts and Crafts Exhibition. The effect to be got by the union of the translucent colour of enamel with the bright surface and fine lines of silver work is happily illustrated in many of these productions; and though gold is more costly and perhaps more durable, we do not see that it is in any other respect equal to silver for the purpose of work of this kind; the silver sets off the enamel colour better, and shows the lines of the metal design better than gold. We may mention especially, as beautiful examples, the two little silver bowls, hexagonal in shape, with enamel on the lids, Nos. 3 and 7. The metal part of the work is charmingly designed in these, in a kind of playful suggestion of architectural detail, and the coloured enamel decorates the lid. The "Silver Box with Cloisonné Enamel" (23) is a good example of the effect of play of slightly curved line in an object of very simple design. "A Mirror in Setting of Silver and Enamel" (27) shows a small mirror-cover with richly-coloured red flowers in enamel. Among others that are particularly good are a bowl in hammered silver, with enamelled lid (52), and a silver salver with a raised centre decorated with armorial bearings in enamel (55). Among the personal ornaments a pendant (87) shows how gold, enamel, turquoise, and brilliants, can make a charming combination; and a very effective lady's belt-clasp is shown in one case, the two halves of the clasp decorated with two swans, facing each other, in cloisonné enamel. The collection is full of objects of beauty, and should be of interest to architects, design of this kind having so much affinity with architectural decoration.

ARCHITECTURE AT THE ROYAL ACADEMY.—III.

OTHER pressing subjects have compelled us to suspend our review of the architectural exhibits at the Royal Academy for a time; we now return to it to consider some of the designs for domestic and street architecture. Of the former there are a considerable number, but too many of them are merely pretty water-colour sketches of more or less picturesque houses of what may be called the "wigwam" or "hut" type, in which the object of the designer appears to be to make the house appear as far as possible the result of accident or of the "fortuitous concurrence of atoms." Many are without plans; some which have plans are without a compass—an important element in regard to the planning of a house which too many exhibiting architects seem to overlook.

Taking them in the order of hanging, the first we come on is "Crathorne Hall" (1,444), by Messrs. Ernest George & Yeates; two brown-tinted elevations, one on a large the other on a smaller scale, and a plan, of what is presumably a new house, though it is made to look very like an old one. Old or new, however, it is a pleasant quiet building to look at; Georgian in general character, the skyline diversified by two high-raised roofs of concave outline over the two extremities of the façade facing the fore-court, and which terminate in small lanterns or cupolas, one of them containing the bell which is a convenient addition to a solitary country house. In the plan the offices are grouped round three sides of a court, and are well shut out from the house and yet convenient of access. There is no compass, and we observe that dining-room, hall, and morning-room all face the same way, but what is the aspect there is nothing to show. This may be all right however, unless the hall acts as drawing-room; there is no drawing-room shown on the plan; it may be, of course, on the first floor, though this arrangement, inevitable generally in town houses, is not a common one in country houses. The garden front has three projecting bays, two finishing in a curved pediment, the centre one in a straight-lined one, with an order beneath it. Altogether a very pleasing house, if somewhat too archæological in character.

Mr. Mountford's "Proposed Flats and Business Premises, Sloane-square" (1,450) is hung too high to be well seen; and the same may be said of Professor Pite's "Restaurant, Great Portland-street" (1,451), which looks as if it merited a better place, as a broadly treated and effective piece of street architecture; the ground story is a series of round arches on narrow piers, with a cornice over, above which is a kind of mezzanine of larger semicircular arches, each bay of which includes two bays of the lower arcade. This portion is in stone (judging from the colouring); above are two stories in brick, of simpler treatment. This is a geometrical elevation, and hardly needs a plan, as it is obviously only a street screen.

Messrs. Mallows & Grocock's "Dalham Hall" (1,454) is apparently an addition to a very plain old square brick house with a formal garden in front of it; the latter is perhaps really the point of the drawing. A small plan shows what is old and what is new. Mr. Ernest Williams's two elevations (hung very high) of Nos. 27 and 28, Pall Mall (1,458) seem to show an effective treatment of Late English Renaissance materials grouped with a certain originality. Messrs. Wimperis & East's "House, Leicester-square" (1,471) is a bold and picturesque treatment of a street front, with two lofty oriels running through three stories of the building; these, however, rather crush the ground story, and the decorative corbels, pleasing in themselves, which appear to carry the projections, would have been better for a simpler and more massive treatment—more of the appearance of carrying weight. But this is a pleasing front, showing some nice decorative detail.

Mr. A. T. Bolton's small line drawing of the interior of the dining-room at Ingram House, Stockwell (1,469), apparently a public dining-room, is worth more attention than its unpretending appearance will get for it; it is a simple but dignified interior, wainscotted up to the impost of the large circular-headed windows, and with a ceiling divided by wide "soffits" into compartments, each of which has a circular panel divided off by an enriched moulding. It is a room that might have been worth a more elaborate drawing. Mr. R. Blomfield's "Caythorpe Court, Lincolnshire" (1,467) is a bird's-eye view hung too high to be intelligible, with the usual charming judgment with which, in the architectural room, bird's-eye views, which should be seen from above, are nearly always hung high up. On the other hand we find on the line Mr. Knowles's "Lintclose, Northumberland" (1,472), a respectable line drawing of a respectable house; but how it has merited, either in respect of drawing or architectural interest, to be hung in so prominent a position, is a question that perhaps even the author of it may have asked himself. In many respects, indeed, the manner in which drawings are selected for good or bad positions favours the idea that it is mainly left to the judgment of the carpenters. Messrs. Young & Hall's "Hospital for Epilepsy Maida Vale" (1,476) is a very pleasing design, with its series of coupled columns carrying the balconies between the projecting wings, and the building looks better in reality than it does in the drawing; but it is ridiculous to hang a hospital drawing without a plan, seeing that in such a building plan is the first and foremost consideration; but that is the way in which architecture is illustrated at the Royal Academy. In Mr. Figgis's "Inebriates' Home, Lingfield" (1,475) we have, for a wonder, a bird's-eye view hung where it should be, below the eye; showing a range of quiet home-like buildings placed round three sides of a quadrangle, with a garden in the centre, and the chapel occupying part of the fourth side. It seems just the kind of building to express the purpose of leading people back to a simple, natural, and healthful life.

Mr. Arnold Mitchell's "Maesycrugian Manor, Carmarthenshire" (1,490) is a finely drawn and tinted elevation of a solid-looking mansion in Domestic Gothic style, with a touch of castellated character in the large low square tower over the entrance part of the house; and the plan has points of interest, especially in the shape of the drawing-room, a long room placed across one end of the house, with two deep square bays projecting from the side and a semicircular bay at one end; as the only entry to the room is by a door near one end, there is an element of surprise as well as of picturesque effect in turning into this large room. Mr. Prentice's "Witham Hall" (1,496) looks an important piece of work, apparently additions to an old house, but hung too high to read the plan properly. At the angle of room with which we have now got there is quite a collection of small pretty water-colour drawings of country houses, rather however reminding one of Bacon's dry sentence—"these are but toys"; some of them have no plans, others have plans which tell one a little too much; No. 1,513, for instance, is a charming little drawing of a house, only the small plan thrown in at one corner shows that both dining-room and kitchen have a south-west aspect—exactly the worst they could have, and that the kitchen window is in a corner of the room on the opposite side from the fireplace; another (1,504) shows the same defect in the position of the kitchen window, so that any one cooking must be in her own light: it is surprising how common this mistake is. Mr. Scorer's "Sketch for House, Isle of Wight" (1,509) is a very nice little elevation of a square high-roofed house in the Old English style, with a stone portico with coupled columns and a festooned frieze filling the space between the wings, the same order and frieze being repeated in the side of the long conservatory; but there is no plan, a thing of course doubly necessary in connexion with an elevation alone, unless, as already observed, the elevation is a mere street screen. Mr. A. H. Hart's "House on the Hadley Road" (1,520) is a fronting perspective view having almost the effect of an elevation, and having some very nice points about it, though we think it owes something to the artistic colouring and get-up of the whole; in this case a small plan is added. Mr. J. Oldrid Scott's "New Rectory, Oxted" (1,526), is a house in what we call the "brick hut" style, looking almost ostentatiously contemptuous of design, but with a certain character about it, and a plan well arranged for parish business; we notice here again that the dining-room and drawing-room are identical in plan and aspect, so that when there is too much sun in the one there must be too much in the other also. The same aspect cannot be equally good for drawing-room and dining-room; though of course there are cases where aspect is intentionally sacrificed to prospect.

Messrs. Nicholson & Corlette's "Burton Hall, Cheshire: North and South Front and Ground Plan" (1,530) is an important contribution, and should have been hung lower. The very plain brick elevations are not, it is true, very attractive, but the plan is a rather remarkable one, with an arcaded court and fountain worked into the middle of the house, and a very good and varied plan in other respects, though here again the entertaining rooms all face south. A prettily executed water-colour drawing of a proposed Thames boat-house, with nothing remarkable about it except the prettiness of the execution, occupies the line immediately below these important plans, which are thus pushed up too high to be properly studied; another example of the inanity with which the architectural drawings are hung, as if pretty pictures were the main object of the room. Some of these drawings ought really to go into the water-colour room rather than into the architectural room. Mr. Sayer's "Fowey Hall" (1,564), a dignified house which, with its projecting pavilion at each angle, looks perhaps a little too much like an asylum or other such institution, has been illustrated in our pages, though not from this drawing; the author did himself injustice in sending no plan, for the plan, as we remember it, is a good one. Mr. Bathurst's "Two Views of a Country House" (1,559) is an exhibit showing a great deal of original character both in design and drawing; this is a red brick house treated in a most severe style, with circular-headed arches without imposts as entrances from the garden terrace, and diversified with the green external shutters which are now coming to be considered a kind of element in country-house design; the terrace wall, of irregular light and dark masonry with a band of bright red bricks driven through it, is a charming specimen of the picturesque of walling; the drawings are altogether admirably executed, and the author has not forgotten either plan or compass, but the plan is rather an odd one. The long corridor on the north side is an interesting interior feature, so are the recessed porches to the garden entrance; but drawing-room and dining-room, identically treated, both face full south with their long sides pierced each with three windows. This is not the way to make rooms comfortable for habitation; but as a whole this is a design with a great deal of original character about it.

THE GUILDHALL PICTURES.

IT has been currently repeated, in the Press notices of this year's loan collection at Guildhall, that it is not so interesting as last year's; a judgment with which we cannot coincide, except in so far as the French collection of last year was of interest historically, in bringing before us examples of a school of French painters whose works are not much known in England except to professed students of the history of painting. Apart from this consideration, those pictures were not for the most part of very high value from the purely artistic point of view; they mostly represented art of the second, not of the first class. This year we have three galleries filled with modern Dutch pictures many of which are of the very best of their kind, and which represent a school of painting of specially artistic aim and character. They are not, it is true, paintings likely to be popular with or to be much understood by the class for whom these Guildhall exhibitions were in the first instance intended, and the attendance at the galleries comes obviously from the west rather than from the east end of London. If one could persuade the East Londoners to interest themselves in landscapes in which the object is not to imitate nature, but to translate nature into artistic expression, it would be an important step gained, no doubt, in their artistic education; but something in the way of a simple and intelligible lecture on the pictures would be necessary to lead up to that; you will never get uncultivated spectators to understand Mauve and Maris by the light of nature. But to those who can look at them from the artistic standpoint the collection of modern Dutch pictures is a delightful one.

We emphasise the "modern," because in truth the one gallery of old Dutch pictures is the least interesting portion of the exhibition. That of course is to say that it contains no great Rembrandts, nor any of the finest work of such painters as Terburg, Ostade, and Jan Steen. The best Rembrandt is the portrait of his son (154); the Duke of Westminster's small

portrait of the painter himself as a young man is a charming picture, but it has not the special qualities which distinguish Rembrandt at his best. Ostade's "Music Lesson" (146), Terburg's "Portrait of a Gentleman" (153), and Jan Steen's "The Sick Lady" (156) are good examples of their authors, but hardly of the highest. Jan Steen's portrait of himself playing on a mandolin (141) has the same kind of frank and unabashed vulgarity as his more celebrated picture of himself and family in the garden. Frans Hals's "The Man with the Rumble" (173) is clever but hideous. Cuyp's life-size study of the head of a cow (184) surprises one by a force and vigour of execution which never appear in his completed pictures. As to the two or three large examples of Ruisdael, what commonplace and conventional things are these in comparison with the work of Mauve. There is a small town scene by Van der Heyde, and a small moonlight by Vanderneer, and these are first-rate of their class, which the Ruisdaels are not.

The painters most largely represented in the modern collection are Israels, Mauve, and the three brothers Maris—Matthew, Willem, and Jacob. Of Mauve we have seldom seen so many works together, and those who already admire him are likely to come away from this exhibition with an even higher idea of his genius. There is not a thing in the galleries with his name to it that is not worth attention; but two especially should be mentioned, the landscape "On the Heath, Laren" (76), a landscape with a clump of trees in the centre, and the broad and masterly painting entitled "Sheep in the Forest" (104), what may be called a foreground picture, which is perfect in its way. Among the other Mauve pictures it is curious to contrast with all the rest the one entitled "The Garden at the Back of Mauve's House" (87), which is so different in style from the rest that one would never take it for his; the explanation perhaps is that this was painted rather as an accurate study of facts than with the intention of making a picture.

The works by the three Maris's would make quite a little exhibition of themselves, so powerful and so varied are they. Jacob Maris, it is true, in his later works, tends to become heavy and oppressive in his colour and effect, though always with style and composition. The rather positive gentleman, whoever he is, who writes the notes in the catalogue, and who, like Macaulay, is "too cock-sure of everything," improves the occasion by directing his readers to compare Jacob Maris's late example, "A Dutch Town" (100), with the early picture "The Weary Watcher" (90), and remark what a progress the painter had made in breadth and freedom of handling in the interval. That is true enough; but it is also true that while "A Dutch Town" is a depressing and grimy sort of picture, by no means beautiful, "The Weary Watcher," a little interior with a mother watching over her infant, dimly lighted only by a single candle, is a beautiful and pathetic work. It is possible to school oneself to like any kind of picture which has an artistic motive, but the natural man does not admire such painting as "A Dutch Town"; it is a systematically acquired taste, and perhaps not entirely a healthy one. But Jacob Maris is not left to be judged by this alone among the works of his later style; there is his large sea-coast picture, "Gathering Seaweed" (44), nearly all sky, and such a sky! there could hardly be anything finer of its kind; one such landscape is worth all the Ruisdaels that were ever painted. Matthew Maris is represented, among other things, by two most interesting and original studies of children, apparently painted about the same time and under the same influence, "L'Enfant Couchée" (70), a child, or a part of a child, in a light-blue dress, lying on the ground, and "Butterflies," a somewhat similar study on a larger scale, a little girl laid on the ground and watching some butterflies; both these are most original in style and colour, paintings which may be said to be artistic inspirations. The versatility of Jacob Maris is shown in his little picture "The Peacock Feather" (75), a small painting, full and rich in execution, of a child holding a peacock feather, the blue "eye" in which makes the one touch of bright colour, and dominates all the rest. The works of Willem Maris are somewhat less original than those of the other two brothers, but include a lovely little landscape "By the Stream" (18), which recalls something of the quality of Corot, especially in the treatment of the trees. Matthew Maris, again, is exhibited in a different light from any of his other works that are here, in the little picture called "A Fantasy" (89), a girl with a distaff, a study in colour of a most original and artistic type. The critics who can find an exhibition with such a set of pictures as these of the Maris's, to say nothing of other things, "not very interesting," must have something the matter with their own eyes and perceptions.

Among the various pictures by Herr Israels there is no one of his very greatest works, but many which are fully worthy of his reputation; some of them well known. There is a small edition (9) of his grand and pathetic picture called "Grief;" not so impressive, from its small size, as the principal work, but quite as fine in execution. Among the others the finest is "The Sewing School at Katwyk" (86), than which nothing in its way could be finer, only it has not the pathetic interest of some of his more serious conceptions.

Among other works of the modern painters may be mentioned the highly-finished little work "La Romance" (22), by Bakker Korff, a painter of old ladies and bric-à-brac; "A Stormy Sunset" (28) by Herr Mesdag; "Prayer Disturbed" (29), a fine life-size painting by Herr Bisschop of a kneeling young woman looking round in church at something which has distracted her attention—the subject, however, is nothing, it is just a piece of fine forcible painting; "The Birdcage" (31), a picture of a child, by Jacob Maris, again quite different from anything else of his in the collection; "The Reading Lesson" (84), by Herr Alfred Neuhys; "An Avenue in Holland" (94), by Herr Theophile de Bock, a work which reminds one a little of Diaz; and "A Sunny Corner" (118), by Herr Bisschop, an interior remarkable for fine colour and artistic style.

The valuable collection of pictures left to the Corporation by Mr. Gassiot is now hung in the large gallery, and forms a most interesting exhibition, including several famous works—Millais' "First Sermon" and "Second Sermon;" one of the best of Tissot's London Society pictures—"Too Early;" and Constable's large and very characteristic landscape, "Crossing the Brook." These are permanently there; but the Dutch collection is there only till July 25, and all who care for "Art for Art's sake" should see it before it is dispersed.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL general meeting of this Institute was held on Monday at No. 9, Conduit-street, Regent-street, W., when the following resolution was moved by the Chairman, and carried *nem. con.*:—

"That, subject to the sanction of the Lords of the Privy Council, the words 'during the five years from the date of approval of this provision by the Privy Council' be omitted from the proviso of By-law 9."

The fifteenth general meeting (business) was then held.

Mr. Alex. Graham, Hon. Secretary, announced the decease of Valère Dumortier, President of the Société Centrale d'Architecture of Belgium, Hon. Corresponding Member.

The Hon. Secretary also gave a description of some recent additions to the library.

The Report of the scrutineers appointed to direct the election of the Council, standing committees, &c., for the year of office 1903-4 was then read, and the following gentlemen were declared elected:—

President.—Mr. Aston Webb, A.R.A., F.S.A.

Vice-Presidents.—Messrs. J. Belcher, A.R.A.; T. E. Collcutt; Alfred Darbyshire, F.S.A., Manchester; John Slater, B.A., Lond.

Honorary Secretary.—Mr. Alexander Graham, F.S.A.

Members of Council.—Messrs. F. T. Baggallay; C. E. Bateman, Birmingham; G. F. Bodley, R.A., F.S.A.; J. J. Burnet, A.R.S.A., Glasgow; A. W. S. Cross, M.A., Cantab.; Ernest George, Past Vice-President; J. S. Gibson; J. A. Gotch, F.S.A., Kettering; E. T. Hall; C. H. Heathcote, Manchester; A. Mitchell; E. W. Mountford; Professor Beresford Pite; G. H. Fellowes Prynne; S. B. Russell; W. Howard Seth-Smith; J. W. Simpson; L. Stokes.

Associate-Members of Council.—R. S. Balfour; H. V. Lanchester; W. J. N. Millard; E. W. Wimperis.

Representatives of Allied Societies.—G. C. Ashlin, R.H.A., Royal Institute of the Architects of Ireland; J. W. Beaumont, Manchester Society of Architects; A. W. Brewill, Nottingham Architectural Society; H. K. Bromhead, Glasgow Institute of Architects; A. H. Crawford, Edinburgh Architectural Association; A. Harrison, Birmingham Architectural Association; Butler Wilson, Leeds and Yorkshire Architectural Society; J. Wood, Bristol Society of Architects; J. Woolfall, Liverpool Architectural Society.

Representative of the Architectural Association, London.—Mr. H. T. Hare.

Auditors.—Messrs. Louis Ambler and W. A. Forsyth.

Art Standing Committee: (Fellows).—Messrs. J. M. Anderson, F.R.S.E.; W. D. Caröe, M.A. Cantab., F.S.A.; T. E. Collcutt; Sir William Emerson; Ernest George; J. S. Gibson; H. T. Hare; E. W. Mountford; J. W. Simpson; Leonard Stokes. *Associates.*—R. S. Balfour; H. V. Lanchester; W. J. N. Millard; P. E. Nobbs, M.A. Edin.; W. H. Romaine-Walker; E. W. Wimperis.

Literature Standing Committee: (Fellows).—Messrs. John Bilson, F.S.A.; A. W. S. Cross, M.A. Cantab.; Francis Hooper; W. A. Pite; G. H. Fellowes Prynne; R. Phenè Spiers, F.S.A.; Hugh Stannus; H. H. Statham; C. H. Townsend; Paul Waterhouse, M.A. Oxon. *Associates.*—Arthur S. Flower, M.A. Oxon, F.S.A.; C. H. Reilly, M.A. Cantab.; Professor R. E. Smith; P. L. Waterhouse, M.A. Cantab.; A. M. Watson, B.A. Lond.; P. S. Worthington, M.A. Oxon.

Practice Standing Committee: (Fellows).—Messrs. T. Batterbury: S. Flint Clarkson; E. Flint; G. Hubbard, F.S.A.; A. H. Kersey; J. Douglass Mathews; W. Milton Nash; J. O. Smith; T. H. Watson; E. Woodthorpe, M.A. Oxon. *Associates.*—W. H. Atkin-Berry; C. H. Brodie; Max Clarke; H. Hardwicke Langston; A. W. Tanner; W. H. White.

Science Standing Committee: (Fellows).—Messrs. T. Blashill; E. Flint; J. S. Gibson; Francis Hooper; G. Hornblower; W. E. Riley; H. D. Searles-Wood; A. S. Snell; B. Tabberer; K. D. Young. (*Associates*).—H. W. Burrows; Max Clarke; B. J. Dicksee; E. R. Hewitt; G. Pearson; A. D. Watson.

The following candidates for membership were then elected under By-laws 7, 8, and 9:—

As Fellows.—W. H. Atkin Berry, London; B. W. H. Brameld, Manchester; W. J. Burrows, London; E. Guy Dawber, London; H. Field, London; J. W. Fisher, Wellingborough; J. Gibbons, Rusholme, Manchester; H. J. Lanchester, New Malden, Surrey; H. Carter Pegg, Westminster, S.W.; Reginald Pope, Folkestone; H. Redfern, Acton, W.; H. Whiteman Rising, London; A. H. Ryan-Tenison, Westminster, S.W.; F. W. Tasker, London; W. Henry White, London.

As Associates.—C. H. Ballantyne, Hawthorn, Melbourne, Victoria; E. A. Jollye, Wolverhampton; A. Woodroofe, Vancouver, B.C.

As Honorary Associates.—Alfred East, A.R.A., Westminster, S.W.; T. H. Mawson, London; Solomon J. Solomon, A.R.A., London.

As Hon. Corresponding Members.—Jean Louis Pascal, Member of the Institute of France, Paris; Heino Schmieden, Königl. Baurath, Ordentliches-Mitglied der Königl. Akademie der Bauwesens, Mitglied der Königl. Akademie der Künste, of Berlin.

At the same meeting the Chairman made a statement with regard to the negotiations with the Institute of Builders in the matter of the "Schedules of Conditions of Contract," and moved that Clause 1 of both documents be amended as follows (the references are to the clause as printed in the current "Kalendar," p. 319):—

Line 3: for "said" read "signed." Lines 4 and 5: for "and instructions in explanation of the same" read "instructions, directions, and explanations." Line 9: for "in excess of" read "extra to." Line 12: for "excess" read "extra." Bottom line: for "excess" read "extra."*

This having been agreed to, the Chairman moved that the following clause be inserted after Clause 12 in the form for use where quantities are part of the contract:—

"12A. Should any error appear in the bills of quantities other than in the contractor's prices and calculations, it shall be rectified, and such rectification shall constitute a variation of the contract, and shall be dealt with as hereinafter provided."

This was agreed to, and the meeting terminated.

* Thus amended, the clause will read as follows:—

1. The works shall be carried out in accord-

ance with the directions and to the reasonable satisfaction of the architect, in accordance with the signed drawings and specification, and in accordance with such further drawings, details, instructions, directions, and explanations as may from time to time be given by the architect. If the work shown on any such further drawings or details, or necessary to comply with any such instructions, directions, or explanations be, in the opinion of the contractor, extra to that comprised in the contract, he shall, before proceeding with such work, give notice in writing to this effect to the architect. In the event of the architect and contractor failing to agree as to whether or not there is any extra, and of the architect deciding that the contractor is to carry out the said work, the contractor shall accordingly do so, and the question whether or not there is any extra, and if so the amount thereof, shall, failing agreement, be settled by the arbitrator as provided in Clause 32, and the contractor shall be paid accordingly. The contract drawings and specification shall remain in the custody of the architect, and shall be produced by him at his office as and when required by the employer or by the contractor.

MAGAZINES AND REVIEWS.

THE *Art Journal* is naturally, at this time of year, mainly occupied in reviews and illustrations of the annual exhibitions; but a special article is included on "Sir E. J. Poynter as a Water-Colourist."

The *Magazine of Art* is also considerably occupied with the review and illustration of Academy pictures, but devotes an illustrated article to "The Decorative Designs of Mr. Frank Brangwyn," one of the painters who takes pleasure also in the artistic design of objects for utilitarian purposes. Some of these designs are a little eccentric and deficient in grace of line—the electric switchboard, for instance, and the inlaid panel for a bed; indeed, one would hardly expect a painter of the force and originality which are shown in his pictures to be consistently graceful and pretty in decorative designing. His stand for an electric lamp reflector, and his hall lamp, are admirable bits of artistic metalwork; and two inlaid table-tops in cherry-tree wood with small squares of central ornament, are very good. Sir William Richmond contributes an article on "The Real and Ideal in Art." What is the object of his short paper may be best estimated by the following extract:—

"His [the painter's] ideal of character may chance to be the embodiment of ugliness, so taken up may he be by the more or less brutal side of nature—so absorbed in the animal, that he presents the animal, being unable to see otherwise. After all, in so doing, he is stating his own ideal, and it is vastly appreciated by the majority—and mostly by them—because to them he is the presentment of a human being on canvas, rendered ordinarily, and so, to the average, sufficiently. Another, portraying the same person, will draw from the commonplace some mental, but not conspicuous, characteristic, extracted from the physical, which being only suggested and dimly defined, is not obvious to the superficial, or even swift, observer. Hence, in all probability, the more subtle if tentative, while at the same time searching, portrait may find a very limited area of appreciation at first sight; the process of the mind of the spectator must be in the same direction as has been employed by the painter if the work is to be understood; the soul of it must be withdrawn out of the matter with effort as well as sympathy. In point of fact, as much pains must be taken by the appreciator or the critic as has been taken by the artist. Not so with the other, more striking, but more superficial representation, which is obvious and unmistakable, evidently the portrait of Mr. or Mrs. So-and-So as their tailor or butcher and baker sees them, but not otherwise, or as they appear in society with their masks on or off."

The *Architectural Record* (New York) has an article by Mr. Montgomery Schuyler on the very interesting subject of "Recent Church Building in New York." The first thing, the writer says, which strikes one in taking up the subject, is how completely the Romanesque revival in America has spent its force. Some of the examples given are Gothic, and rather weak Gothic; but the Church of the Holy Trinity, by Messrs. Barney & Chapman, shows a powerful and original treatment of the tower. We do not see the special appropriateness which Mr. Schuyler finds in the Gothic treatment of the Lutheran Church of the Advent (Mr. W. A. Potter), which he seems to regard as so especially Teutonic in its indications. It appears to us to be a Gothic which might as well belong to the Episcopal church of England or America; and indeed we never connect Gothic much with Lutheran associations. There appears also to be in New York a certain feeling in favour of Classic churches. The front of St. Francis de Sales (we presume a Catholic church), we agree, hardly suggests a church at all; the "Christian Scientists," whose first church is in the Classical style, have secured a certain degree of originality in the design of the termination of their entrance front, which has a massive effect rather recalling that of St. Mary Woolnoth. One or two Jewish synagogues are illustrated, and a Russian church in a kind of imitation of the Russian style, with a New York flavour added; not a promising combination. It is surprising that in a specially architectural publication like the *Record* such an article as this should be allowed to appear without any plans of the buildings, which are merely illustrated by photographic views. Mr. Edward R. Smith, in the same number, writes an article, of which this is only Part I., on "The Relation of Sculpture to Architecture." Under the heading "sculpture" he seems to include all carved ornament, which is not the sense in which the word is commonly understood, while he regards sculpture from the point of view of the provision of light and shade and variation of surface on a building. This is no doubt one very important function of sculpture as a part of architectural design, and perhaps it is well sometimes to consider it purely from this point of view, disregarding for the moment the special design and meaning of the sculpture; but it is not a point of view, we fear, which sculptors will quite appreciate. Under the title "The Renovation of the Brownstone District" are given a good many examples of recent street fronts in one district of New York. It appears that about 1830 brown stone was substituted for brick in this district, and regarded at the time as an important architectural improvement. We gather that the brown stone houses are now in their turn getting superseded by something more enlivening. The numerous illustrations given of recent houses are of considerable interest.

The *Architektonische Rundschau* contains nothing that can be said to be of much interest; the best thing in the illustration plates is the Schmetter-Haus at Troppau, by Herr Rudolf Srnetz, an architect of Brunn near Vienna. This is a building with a tower and cupola in the centre of the façade, and looks rather like the town hall of a country town; it is in reality, we presume, a kind of large tavern or house of recreation (we are not familiar with the term "Schmetter-Haus," but that appears from the plan to be its purpose); and considering the sort of architecture which generally illustrates this class of building, it is of some interest to see a design for such a building which is picturesque and not tawdry or pretentious. We can find nothing to interest us in the remainder of the number.

The *Berliner Architekturwelt* gives an illustration of a large boys and girls' school in the Bergmanstrasse, by Herr Haack, which is rather striking for the bold simplicity with which it is treated; it is a vast stretch of brick front with a stone plinth and surbase, pierced with regular rows of mullioned windows (flat unmoulded mullions and transoms), with the two doors for boys and girls, marked by a plain stone rusticated arch and half-columns, standing out a little from the general line of frontage. The skylight is broken by a stepped gable in the centre; otherwise the whole thing is absolutely severe in its lines, and yet it does not show that uninviting and prison-like appearance which characterises the normal French *lycée*. The gymnasium for the Grunewald neighbourhood (MM. Zaar and Dahl) is a pleasing-looking building, but in no way suggests a gymnasium. Among the other contents of the number is one of those imaginative architectural sketches which German architects are so fond of "Kirche in der Einsamkeit"—"A Church in a Lonely Place," which is effective and poetic, though of course it represents a kind of church which would never really be built.

In *Scribner*, under "The Field of Art," Mr. Russell Sturgis discusses the question as to a proposed building for art exhibitions in New York, and what should be aimed at in such a building. It appears that the artists and artistic societies in New York are making a combined move in the matter. Comparing New York with Paris, it is stated that the Academy of Design stands for one salon and the Society of American Artists for the other (this kind of dual representation seems to obtain everywhere now). The Sculpture Society in New York appears to be a separate body. Mr. Sturgis discusses the views of those who are in favour of a picturesque combination of paintings, sculpture, and works of ornamental art:—

"In a well-handled private collection, things are arranged in this way, prettily combined one with another; even a precious painting on the wall helped by the neighbourhood of other even if minor works of fine art, and helped, moreover, by such harmonies of colour as are derived from the neighbourhood of other paintings and from the background itself. The picture in question is not picked out for special insistence on the student's attention; it is, when seen, far more agreeably seen than if it had been more isolated. The reader will feel that if he had one hundred pictures of value he would not put them in a bare room which had nothing else in it; but then also he would feel that he would not invite as many people as that room would hold, to carry catalogues in their hands and jostle one another in the attempt to see his pictures. He would object to the one feature of a great public show as much as he would to the other. And so it is that it dawns upon the reformer that he is asking something which it would be quite immeasurably difficult to obtain. And, as one reads the arguments advanced by those who desire an ideal 'salon,' he sees that the grouping of furniture and vases, statuettes, and bijouterie, pictures and hangings, would involve such an encroachment upon the space left for the coming and going visitors, and would involve such restrictions and police regulations and so much watchfulness on the part of the caretakers, that the first purpose of these great annual shows would be largely defeated."

Thus the author seems to admit that the "ideal salon" is a practical impossibility. *Oportet vivere* is what is really, it seems to us, at the bottom of the difficulty. To refuse all works but those which are judged as first-rate would render the "ideal salon" a possibility; but then it would be a very harsh measure to the host of minor artists who are not without a claim to be recognised. *Scribner* contains also an article on "The Lover of Trees in Italy," with a number of charming illustrations of Italian tree effects.

The *Contemporary Review* contains two articles of considerable importance in regard to art and engineering work; one of these is a review of the character and the work of William Morris, by Mr. Lewis F. Day, which is an admirable piece of critical summing up, recognising Morris's limitations as well as doing justice to his character and genius. The other is a long article, full of statistics, on "The Internal Navigation of France," by M. Pierre Baudin, a former Minister of "Travaux Publics." It appears from this article that French canals have passed through the same stage as the English ones, of being eaten up by the railways, but that the French Government do not regard this sacrifice with the philosophical indifference displayed in England. At present the French canal system, M. Baudin tells us, mostly runs in one part of the country only, to the forced exclusion of other regions from its advantages; but that canals are wanted and will pay seems to be shown in the fact that the St. Quentin Canal, from Paris to the north, is "positively choked with traffic." But there seems to be every intention on the part of the French Government to extend and develop the canal system, and also to endeavour to bring about harmonious co-operation between canals and railways. The article ought to have attention in this country.

The *Cornhill Magazine* contains a very full exposition of "Radium" by Mr. W. A. Shenstone, F.R.S., a résumé of the subject which contains all that the general reader can require to know about it—so far at least; for, as Mr. Shenstone observes, the knowledge of the nature of radium rays may have been further advanced between the period of the writing and the publication of his article. He concludes with the remark that if the extraordinary qualities of radium are due to its throwing off swarms of minute particles of matter, "then the supply of them cannot be inexhaustible in the case of any given specimen of radium." The same number contains an amusing poetic onslaught on the motor car, under the punning title, "Autocarmen Sæculare."

The *Nineteenth Century* contains a short but able article by Mr. Arthur R. Hinks, of the Cambridge Observatory, on "Stonehenge and the Midsummer Sunrise." We must refer the

reader to the article for the arguments; but the conclusion is that the certainty or probability of a date for Stonehenge, calculated on the theory that it is orientated to the mid-summer sunrise, has been greatly exaggerated; that if it was so orientated we do not know with what degree of exactness, and the structure itself is too rude to admit of very exact computation; furthermore, that we do not know whether, in such a case, it was the first appearance of the sun above the horizon, or the moment when his centre was on the horizon, or the moment when the whole orb had cleared it, that governed the orientation; and that in a latitude where the sun rises diagonally this would very much affect the chronological calculation. The writer has some general remarks in regard to the exaggerated importance attached of late years to the orientation of ancient temples, which are at all events useful as calling attention to the other side of the theory. We have long been of opinion that the orientation theory in regard to Egyptian and Greek buildings has been pushed a great deal too far. In the same number Mr. E. B. Havell, of the Government School of Art of Calcutta, writes an article on "The Taj and its Designers," the main object of which is to discredit the theory that European artists and architects had a hand in it. Some persons, it appears, believe or have believed this; but surely the Taj itself is the best answer. If there is a building that is thoroughly representative of Oriental art in all its glory, it surely is the Taj. Mr. Havell, we are glad to see, is one of those who deprecate strongly the influence which our rule in India has had in introducing second-hand Renaissance art into a country which has its own splendid artistic tradition.

Macmillan contains an interesting article by Mr. E. Vincent Heward on the planet Venus, a sketch of the history of observations of the planet before and after the telescopic era, and the results of the most modern observations. Among the latter is the note of a lengthened observation by Schiaparelli in 1890, which led him to the conclusion that Venus is in the same relation to the sun as the moon is to the earth—*i.e.*, she turns always the same face to him and has no axial revolution, or at least no diurnal one. The following summary of the position concludes Mr. Heward's interesting article:—

"The error of previous observers in assigning to the planet a diurnal rotation was due, it is believed, to variations in the atmospheric condition of the earth, which recur, Schiaparelli had remarked, about the same hour daily. Confirmatory evidence of the planet's fixity of position relatively to the sun was soon afforded by M. Perrotin, at Nice, who during six months' almost continuous observation in 1890, could find no sign of a daily revolution about its axis. He is of opinion that the few varying features visible now and then are due to cloud movements in the upper strata of the planet's atmosphere. The real body of Venus has never been seen; all that has been taken to indicate the presence of lofty mountains, wide chasms, and crater-like peaks is now believed to be the fleeting forms of cloud-scenery. But amid the perplexities which beset the observer there is the certainty that between the two separate regions of perpetual night and day there must lie a wide zone of subdued rose-flushed twilight, where the climatic conditions may be well suited to the existence of a race of intelligent beings, whose highest aim may possibly be the exploration of the mysterious regions lying beyond their ken."

In *Harper* there is an article by Mr. Macalister, "Uncovering a Buried City," which describes the result of excavations on the hill of Tel-el-Jezair, in Palestine, which has been identified by the inscriptions on certain ancient boundary stones as the Gezer of the Old Testament. It is mentioned as a conquered city in the Karnak list of Thothmes III., about 1500 B.C., and was an important place during the Crusades, so that its history extends over many centuries, and the excavations have brought to light several different recognisable strata of remains of different epochs. In the same issue is an interesting article by Mr. Carl Snyder on "The World beyond our Senses"—the world of light waves and cathode rays and other phenomena concerning which we can reason from deduction, but which are beyond the direct evidence of the senses.

Architects travelling or about to travel in the East should look at Mr. Crosby Butler's article in the *Century* on "A Land of Deserted Cities," describing the little known Roman remains to be found beyond the range of mountains along the eastern coast of the Mediterranean, between these mountains and the Euphrates; a region, he says, almost unknown hitherto to the modern traveller. The author was a member of the American expedition to Northern Central Syria. Here is, possibly, a new field for architectural students and artists.

Mr. Wallace's recent article in the *Fortnightly Review* on "Man's Place in the Universe" has produced much other writing on a subject of such fascinating interest, though Mr. Wallace, as far as we have observed, has found no supporters. The first article in *Knowledge* is a long communication on this subject by the eminent French astronomer M. Flammarion, which is full of thought, but entirely adverse to Mr. Wallace's views either as to the place of man or the constitution of the universe. M. Flammarion will hear nothing of finite space; the universe, and consequently space, is infinite: a subject which in one sense at least it is little use finite man discussing, since we can neither think the idea of infinite space or of finite space; for every brain which tries to conceive the latter alternative is brought up by the question—what is beyond the boundary? However, it is good to think sometimes on these vast problems; it takes us out of the littleness of everyday life on this small planet.

In the *Antiquary* Mr. F. B. Andrews (architect) commences an essay on the exceedingly interesting subject of "Mediæval Barns," with illustrations from photographs of several barns, and a plan of that of Littleton. The subject is to be continued.

In the *World's Work* will be found an article, with a number of illustrations, on "The Machinery of Grand Opera," illustrated by special photographs taken at Covent Garden. This will give a good idea of the complication of the behind-scene arrangements and machinery for carrying out the effects demanded more especially in Wagner's operas. Whether the study of it is calculated to raise one's idea of Grand Opera as an intellectual entertainment is another matter.

To the *Revue Générale* M. Maurice Zech contributes a long and learned article on Pergamos and its architectural and sculptural remains, to which we can only refer the reader. The article is to be completed in a future number.

In the *Gentleman's Magazine* is a short but interesting article by Mr. W. J. Lawrence on "A Famous Old Italian Theatre," the Teatro Farnese at Parma, represented in Bibiena's painting in the Wynn Ellis collection at the National Gallery. The subject is made the occasion for some considerations on scenic effect in theatres, as practised in Italy of the Renaissance and in this country.

Printer's Pie is not, we gather, a periodical, but a specially issued publication in commemoration of the Festival Souvenir of the Printers' Pension Corporation, 1903. It is published (price half-a-crown) by the firm of Spottiswoode, with the view of augmenting the funds of the Printers' Pension Corporation; and in this respect we are glad to recommend it to our readers, not only as a publication for a charitable object, but as an exceedingly good half-crown's worth, containing many interesting articles and excellent illustrations, and quite worth purchasing for its own sake.

COMPETITIONS.

QUEEN VICTORIA HIGH SCHOOL, STOCKTON-ON-TEES.—In response to the advertisement issued by the Governors, they received seventy-six competitive designs for the new school proposed to be erected at the corner of Yarm-road and Cranbourne-terrace, Stockton-on-Tees. The Governors appointed Mr. R. J. Leeson, architect, of Newcastle-on-Tyne, to assist them in deciding upon the designs, and, after a careful examination of the plans submitted, those of the following competitors were selected for further consideration, namely:—Mr. Felix Clay, Buckingham-street, Strand, W.C.; Mr. Stephen Wilkinson, Mosley-street, Newcastle-on-Tyne; Messrs. Clark & Moscrop, Darlington; Mr. H. T. Holdgate, Gray's Inn-square, London; Mr. Benjamin Bower, Temple-street, Birmingham; Messrs. Houston & Houston, Long Acre, London; Messrs. Sheppard & Burkinshaw, John-street, Adelphi, W.C.; Mr. H. T. Hodges, Heaton, Newcastle-on-Tyne; and Messrs. Armstrong & Wright, Newcastle-on-Tyne. Ultimately, on the advice of Mr. Leeson, the Governors awarded the first premium to Mr. Felix Clay, the second to Mr. Stephen Wilkinson, and the third to Messrs. Clark & Moscrop. The designs will be exhibited in the Club Room, behind the Exchange Hall, Stockton-on-Tees, on Monday and Tuesday, the 15th and 16th inst., from 10 a.m. to noon, and from 2 to 4 p.m.

ARCHÆOLOGICAL SOCIETIES.

ROYAL ARCHÆOLOGICAL INSTITUTE.—At the general meeting of this Institute on the 3rd inst., Mr. E. W. Brabrook, V.P., in the chair, Miss E. L. Bruce-Clarke exhibited a small bronze figure recently found at Eastbourne in digging the foundations of a house. Professor T. McKenny Hughes read a paper on "Buried Cities," with special reference to Herculaneum. He described some of the ordinary processes of nature by which forests, dwellings, and cities were buried, pointing out that slight changes in geographical conditions often resulted in what might be called local cataclysms or catastrophes. For instance, the sudden shifting of sand dunes sometimes buried houses and villages which had long been considered out of their line of encroachment. He explained how the eddying wind sometimes formed mounds and hollows which were always moving within certain limits, and that heavy objects dropped on the surface at very different periods were thus by gravitation carried down to the bottom to be again covered and uncovered by the swirl of the wind; such processes causing much question as to the age of deposits, in which sometimes recent coins and flint implements were found together, as in the Culbin Sands, near Nairn. He looked forward to the time when the manor house which had been covered for two centuries under one of these mounds, would in some exceptional storm of dry wind be again exposed. He then passed on to the consideration of cases in which towns had been buried under volcanic ejectamenta, referring especially to Herculaneum. It had often been supposed that Pompeii had been buried under ash and Herculaneum under larva, but he explained the nature of the lava *d'aqua* which had overwhelmed Herculaneum, referring it not to larva nor to any flow of hot mud from the volcano nor to any outburst of water during the eruption, but to a heavy rainfall washing down the unconsolidated ash, which then set into a sort of Roman cement. He referred to the geographical conditions of the district as described in ancient history and as now seen. Two valleys ran down either side of the promontory on which the city was built. In these the rainwash was collected, filling up all hollows and choking the principal harbour so that it was impossible to approach the shore. But, he contended, outside the line of flow the ash was only wetted on the surface or to a small depth, and he urged that if careful researches were carried out and borings made, parts of Herculaneum would be found covered only with a dry ash easily removed, and probably monuments of great interest might be unearthed; perhaps, he added, another library of more value, he hoped, than that already found.—Mr. J. H. Round then read a paper on "The King's Pantler," in which he traced the functions of the *panctarius*, as head of the pantry in the King's household, and their discharge at coronation feasts by the Beauchamps, Earls of Warwick, as great pantlers. He showed that the office in England had never been so important as that of the *grand pannetier de France*, and that though at coronations the butler and the pantler had served together as great officers, the latter had ceased to officiate since the days of Elizabeth. In the discussions following the above papers the Chairman, Judge Baylis, and Mr. Lindsey took part.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—The last meeting of the session was held on June 3, at 32, Sackville-street, Piccadilly, Mr. C. H. Compton, V.P., in the chair. The Rev. J. S. Coverley brought for exhibition an interesting collection of pottery, mostly Roman, discovered during the excavation of some barrows in Yorkshire and Derbyshire. Mr. Coverley also exhibited two fine copperplates engraved by Houbraken, 1750, with portraits after Holbein. Mr. Andrew Oliver exhibited a rubbing of a monumental slab from Bruges, bearing five chalices, two at the top, two at the lower end, and one in the centre surrounded by an inscription. The slab

was originally placed in one of the churches, but was turned out with several others some years ago, and is now used as a coping-stone to a quay wall, having been cut into sections to fit the breadth of the wall. Other slabs there are bearing figures of a bishop and priest. They all are of the date of the middle of the fifteenth century. The Rev. J. S. Coverley read a paper upon "Shears and Other Emblematic Signs on Sepulchral Slabs," having reference more particularly to the large collection of coffin lids discovered at Bakewell in 1842, during the removal of the foundations of the church. They have been described by some authorities as Anglo-Saxon, and by others as of the eleventh, twelfth, thirteenth, and even of the fourteenth centuries, the latter period being that to which many of them most probably belong. They undoubtedly commemorate the dead buried in the surrounding churchyard; the lids are flat with a florid foliated cross running the whole length and nearly all, without distinction of size, bear one of two symbols, either the shears or the sword. One has a key and a sword, the emblems, probably, of magisterial office. Having alluded to the various theories put forth by different writers to explain the meaning of these symbols, Mr. Coverley suggested that the shears, the axe, the sword, and especially the scythe, being all cutting instruments, were intended to be emblematic of the cutting off of our days. They were symbols of the unrelenting, inexorable Atropos. In support of this contention he quoted from Spenser, Shakespeare, Milton and other writers. There are instances, however, in which many of the signs described occur where they could not have been intended as emblems of mortality, but must have reference to trades, occupations, or office holding. In the discussion following this interesting subject, Mr. Cecil Davis, Mr. Gould, Mr. Emanuel Green, Mr. Oliver, Mr. Kirshaw, Mr. Allen S. Walker, and others took part. The Rev. H. J. Dukinfield Astley next read a paper contributed by Miss Longe, on "John Salisbury, the last Prior of St. Faith's, and sometime Dean of Norwich." The Priory of Horsham St. Faith was a cell of the Abbey of Conches in Normandy, and was founded by Robert Fitzwalter and his wife Sybilla in the reign of Henry I. John Salisbury, the last Prior, was a remarkable man in many respects, somewhat resembling the celebrated "Vicar of Bray," in that, notwithstanding the tempestuous period in which he lived—the early Reformation days—he managed to steer his way with much adroitness, and successfully weathered the storm, remaining in favour with both Henry and Elizabeth, holding many preferments at the same time; and, although married, contriving to avoid even falling out altogether of Mary's favour. He died Dean of Norwich in 1573. Mr. Cheney made some interesting remarks upon the subject of the paper.

Illustrations.

DESIGN FOR LIVERPOOL CATHEDRAL.

WE devote this week's plates to the design for Liverpool Cathedral by Mr. W. J. Tapper, which, as we have already said, we regard as, taking things all round, the finest of the designs submitted.

As we mentioned in the general review of the Cathedral designs in our issue of May 30, the tower connected with this design is on a separa e site at the south end of the ground, and we were unable to include it in our photographs of the drawings.

The following extracts from the architect's Report, sent in with the drawings, serve to explain his views in the design:—

"There being no main street on an axis line with the centre of the site, and its north end being irregular in shape, a western cloister seems to be the natural thing, corresponding to the Atrium found in the Early Basilicas. It has many advantages, both practical and artistic.

As suggested in the instructions, the main entrance is arranged at the Upper Duke-street end of the site, a flight of steps leading from the open space formed by the junction of Rodney, Upper Duke, and St. James streets, to a gatehouse in connexion with the Cloister Court. This entrance is designed to fit the existing boundaries, and the site plan shows the low wall and iron railing enclosing the cemetery chapel. It will be seen, however, that a broader effect would be obtained were it possible to remove this railing and throw open the chapel to the street.

Entering the low archway to the Cloister Court, and crossing this, the great portal is entered, and right and left, taking advantage of the greatest width of the site, are placed respectively the baptistry and morning chapel, the latter orientated as desired. The morning chapel at the liturgical west end is convenient. . . .

As indicated on the sections of the site, it is proposed to do away with the slope towards St. James-street, and form a broad terrace with a parapet capping a high retaining wall. This would give a suggestion of strength to the building.

In the crypt ample space is available for the boilers for heating purposes, fuel store, electric-lighting plant, engines, and bellows for the two organs, &c.

After much consideration and study of various plans in order to arrive at the best means of accommodating 3,000 persons (without any interruption of the view of the preacher from columns), a simple parallelogram has been adopted. Great preaching naves exist, and it is from such that guidance has been sought, in order to arrive at a satisfactory solution of the problem set by the Committee. There are the great French and Spanish churches *e.g.*, Albi, Gerona, and others, the former having a clear span of 60 ft., the latter one of 73 ft., and the results are most impressive.

The dimensions of the proposed nave are 263 ft. 9 in. long; 76. ft. wide. Excluding the western bay, having piers for the gallery, the required accommodation is provided in an uninterrupted area. By placing the pulpit as shown the preacher would command the whole of this area, and he should be distinctly heard by all, judged by experience of existing buildings.

Most careful consideration has been given to the question of a central vaulted space, but it is obvious from the fact that the area underneath the dome of St. Paul's Cathedral, 110 ft. diameter, only accommodates some 1,250 people, anything in the nature of a vaulted space with a floor area capable of accommodating more than twice that number is unpractical, from an artistic and constructional point of view. The acoustic properties of such a vast vaulted area would also be doubtful. . . .

In Mediæval times, the canonical body being large, the choirs were also, but this is not so to-day. Common sense therefore suggests a comparatively small choir. A deep choir with the Holy Table set far back is unsuitable for modern congregational worship. Its position here is at the centre of the crossing of the choir transepts. The red lines on the ground plan show that the vast majority of the congregation can see the Holy Table, and join in the Communion Service.

Diocesan conferences are now well established, and it has been thought that a presbytery (such as are found at Ely, Lichfield, and elsewhere) eastwards of the Holy Table would be of practical value. In the centre, at the extreme liturgical east end of the church, would be placed the bishop's chair (cathedra), with the Diocesan clergy on either side. Such an arrangement is but a return to the usage of the Early Christian Church, and exemplified in later times at both Canterbury and Norwich. The plan therefore embodies all the essentials of the modern English Church — namely, the great preaching nave for large congregations, and for the holding of large musical festivals; the smaller choir for the daily cathedral service; the presbyterium, a place specially for the diocesan clergy; and the morning chapel, for the bringing together of comparatively small congregations for early or evening services. Good access and egress, on which the orderly arrangement and comfort of large congregations depend, is afforded by the placing of the various doorways.

At the west end of the morning chapel will be a gallery for a small organ. Above the cloister leading to the baptistry will be the cathedral archives, or muniment-room.

The position of the baptistry is in accordance with early Christian usage. . . .

The nave having a span of 76 ft. demands a proportionate height, and this has been made two to one, the same as at King's College Chapel, Cambridge, only on a much larger scale—the height from floor to apex of vault being 152 ft. Lest this should be thought extravagant, it might be well to mention that buildings of such dimensions exist in quite small towns, such as Beauvais, Amiens, Gerona, and many others, small, indeed, as compared with the great City of Liverpool. The great width of the nave does not permit comparison with any of the English cathedrals.

The leading idea in the design of the nave is the great clearstory windows, emphasised by their being continued round the east end of the nave over the choir arch. It is intended that the filling of these great windows with painted glass should form an integral part of the design.

In a building of such dimensions it is important, in order to bring the whole into scale, that not only the detail, but the multiplication of parts, should be accentuated. By breaking up the wall into many stages, and the use of varying orders in the detail, scale is given to the building.

A good effect of light and shade is hoped to be obtained by the contrast between the comparatively dark triforium, the solid panelling of the lower portion of the great windows, and the brilliancy of the windows above.

An important feature of the nave design is the treatment of its east end. The bay here is canted for two important reasons—namely, as an easy and simple method of leading on to the narrower choir, and of dealing effectively with what otherwise would have been a vast surface of walling. It also gives good perspective effect looking from the liturgical west end. The tall choir arch, and narrow choir beyond, is invaluable in emphasising the size of the nave. By means of such contrasts, an impressive effect is looked for.

The other important feature is the orchestral gallery at the west end. This, with its vaulted arches, will give certain perspective effect and graduation of light and shade to what is often an uninteresting portion of a church. The great organ, with a well-designed case, would make a most beautiful decorative feature, brought out with a judicious use of gold and colour. Above this, high up and beyond, would be seen the rose window, filled with glass of jewel-like quality. . . .

As regards the general treatment, the governing idea has been to sacrifice all subsidiary effects in order to produce one great harmonious monumental whole, of which the detail would be founded on that of the best period of Gothic architecture, not thereby implying a slavish copyism, but rather, as has been well said by your advisors, that the spirit of our best architecture might be caught and its magnificent traditions handed on."

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—At a meeting of the Society of Engineers held at the Royal United Service Institution, Whitehall, on the 8th inst., Mr. J. Patten Barber, President, in the chair, a paper was read on "Electric Light Stations, their Design and Arrangement," illustrated by drawings of the Bridlington Electricity Works, by Mr. Ernest R. Matthews, C.E., F.G.S., Borough Engineer of Bridlington. After giving a sketch of the early history of electric lighting, the author gave a detailed description of the various points necessary to be observed in designing an electric light station, illustrating his remarks by drawings of the proposed Bridlington Electric Light Station, which he had designed and which was about to be carried out. He first dealt with the engine-house, and pointed out that it was a great mistake to cramp up an engine-house, that the floor area should be full and sufficient, and that ample space should be left not only between each engine, but also adjoining each wall of the engine-house. He then referred to the necessity of making provision for future extensions by building a temporary end. Plenty of head room was necessary in order that the overhead crane could run to and fro with perfect freedom. The walls, he considered, should be built in cement mortar, and should be calculated to withstand not only the strains due to the overhead crane and the thrust of the roof, but also the vibration set up by the engines. Piers built in cement should support the girders or arches carrying the overhead traveller, and it was a most decided advantage to have the walls of an engine-house lined with glazed bricks, and he described such a method which he had adopted in the Bridlington engine-house. He considered that a 10-ton crane, worked by hand from the floor by ropes, was quite sufficient for a small station. Plenty of light was necessary, and he recommended that one-seventh of the roof surface should be skylight, and about one-sixth of the total wall area windows. Ample ventilation should be provided, chiefly by means of hopper ventilators in the windows, and by means of the glazed roof ventilators. The engine-bed would vary from 5 ft. to 20 ft. in thickness, according to the type and weight of the engine. The floor might with advantage be paved with red Staffordshire encaustic tiles, laid herring-bone fashion on 6 in. or 9 in. of concrete, the cover plates of the trenches being filled in to match the floor. A convenient size for the trenches, he thought, was 2 ft. 6 in. wide by 2 ft. deep. The drains should have manholes at intervals; the roof should be supported by light steel roof trusses; brackets should be inserted in the walls to carry pipes; and there should be a pair of broad doors running on rollers at the temporary end. The floor area of the boiler-house would depend on the number, size, and type of boilers. The Bridlington boiler-house measured 63 ft. by 33 ft. 6 in., and it accommodated two Lancashire boilers, each 7 ft. 6 in. in diameter and 30 ft. in length. In calculating the weight of the boilers for foundation purposes it was necessary to include water and fittings. Concrete 2 ft. in thickness should be sufficient. Provision should be made for future extensions by building one side of

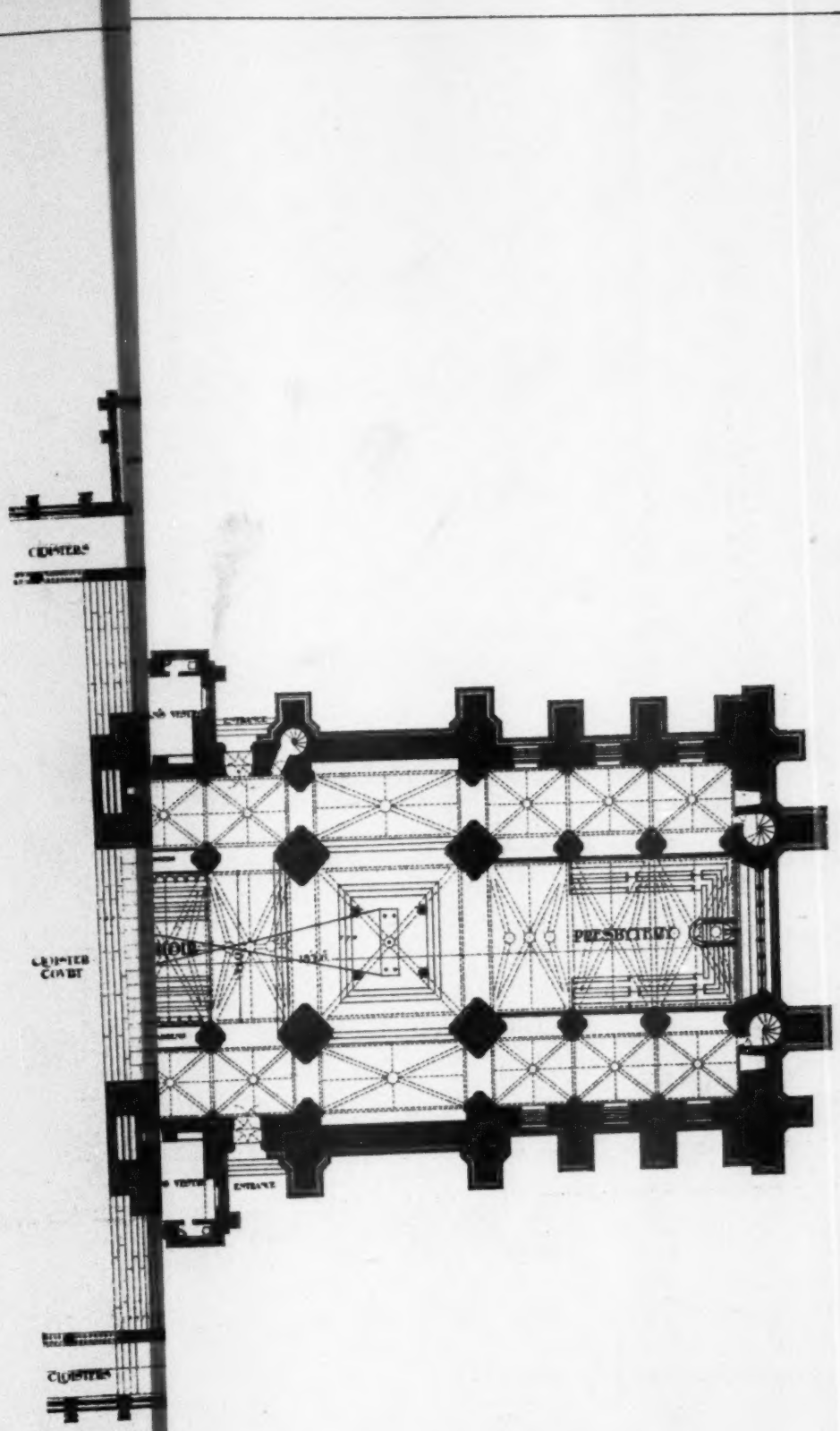
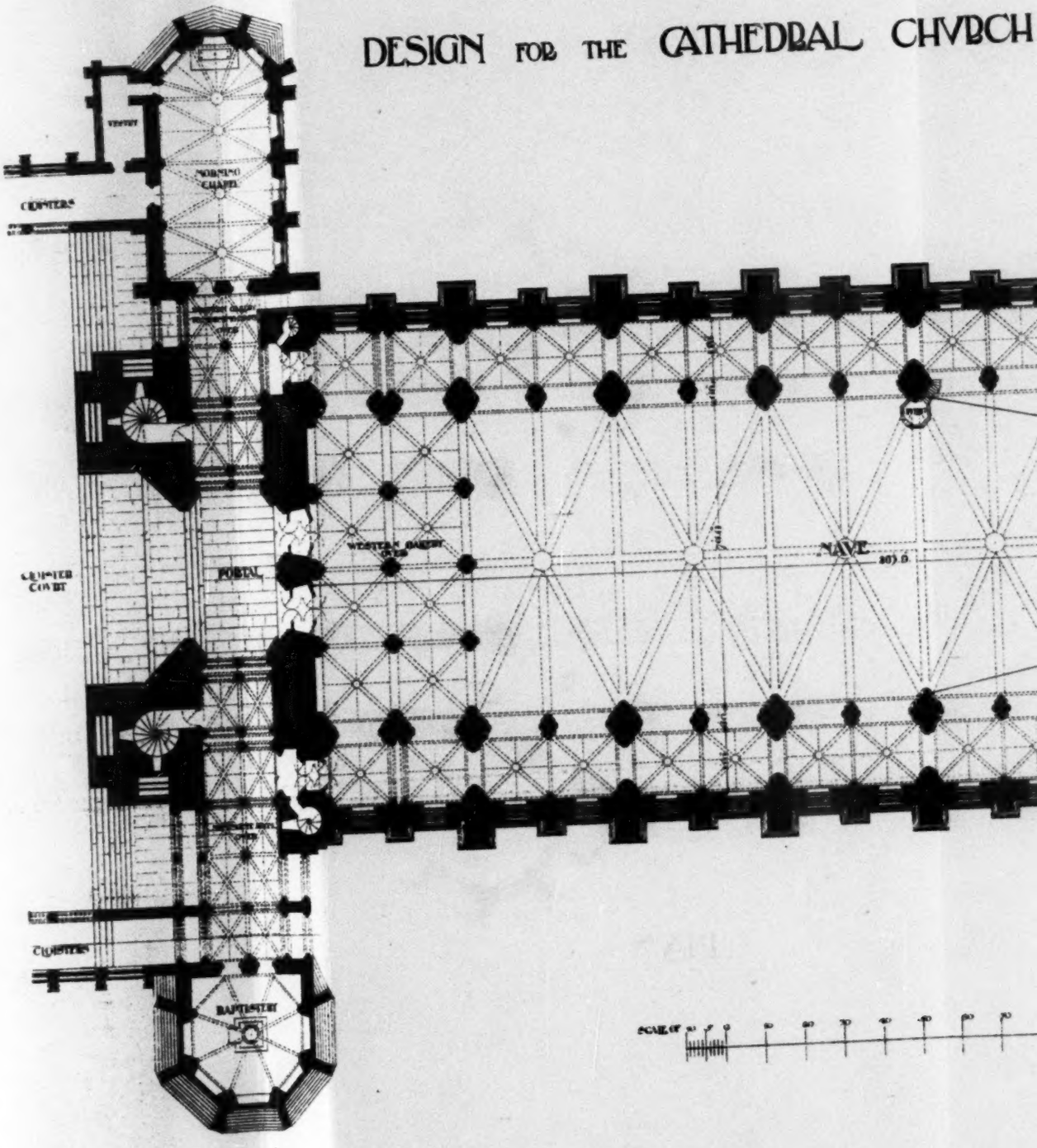
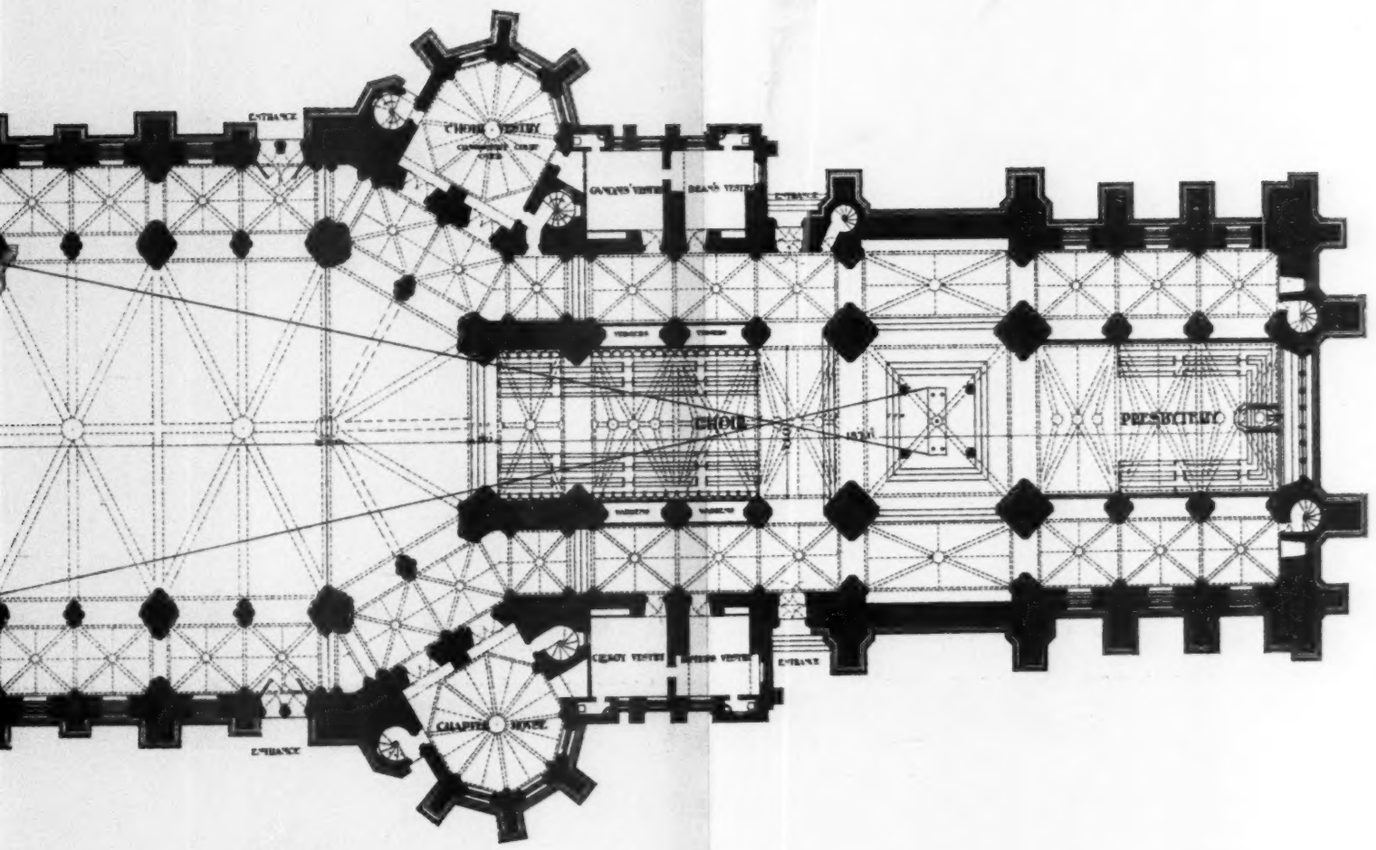


PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

DESIGN FOR THE CATHEDRAL CHURCH



CHVRCH LIVERPOOL



PLAN

PHOTO-LITHO. SPRAGUE & Co LTD. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

RAL COMPETITION.—Design by Mr. W. J. Tapper, A.R.I.B.A.

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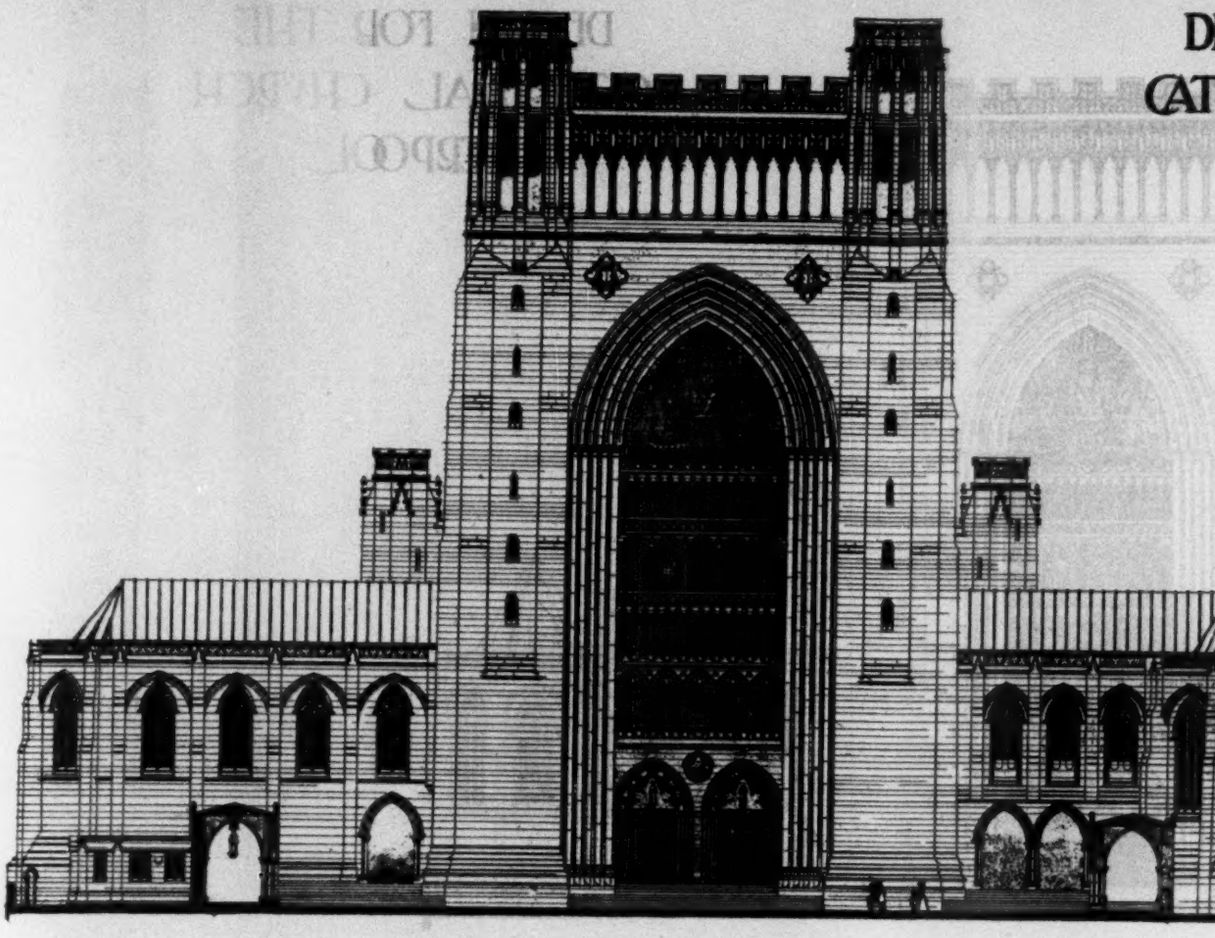
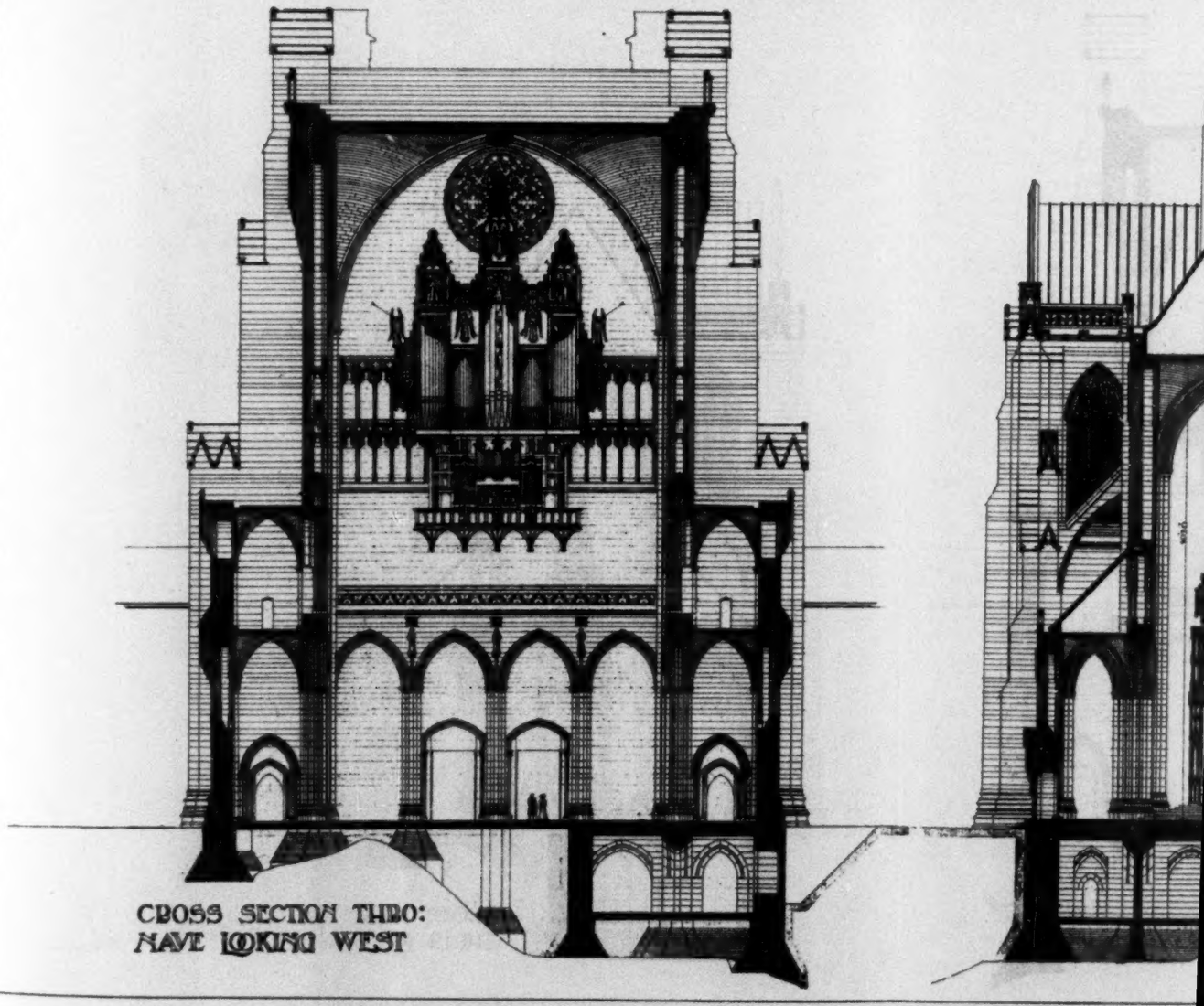
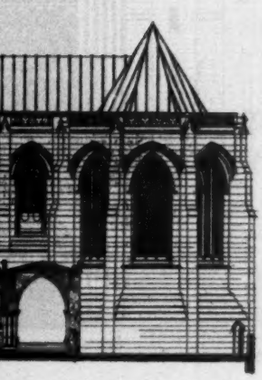


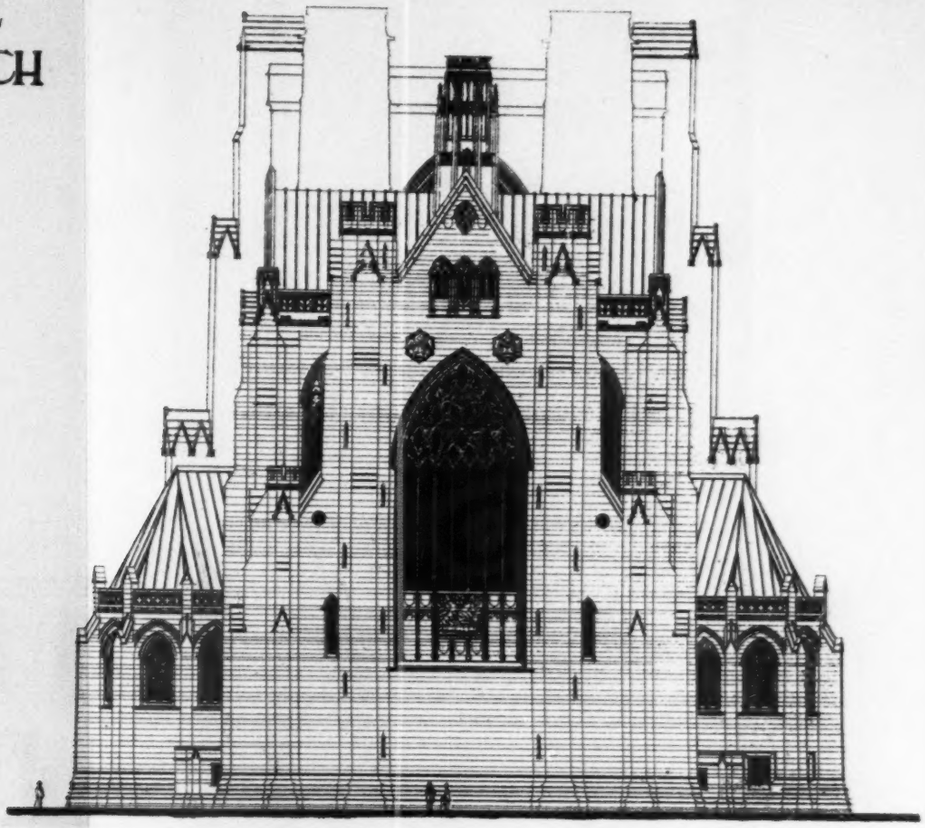
WEST ELEVATION



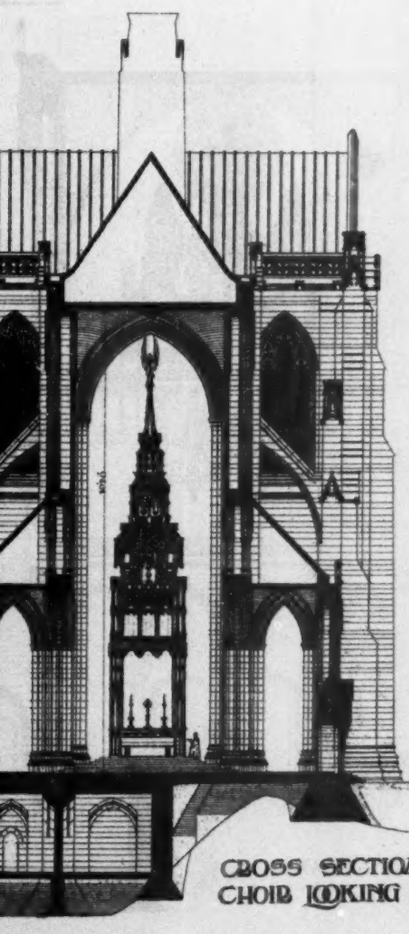
CROSS SECTION THRO:
NAVE LOOKING WEST

DESIGN FOR THE CATHEDRAL CHURCH LIVERPOOL

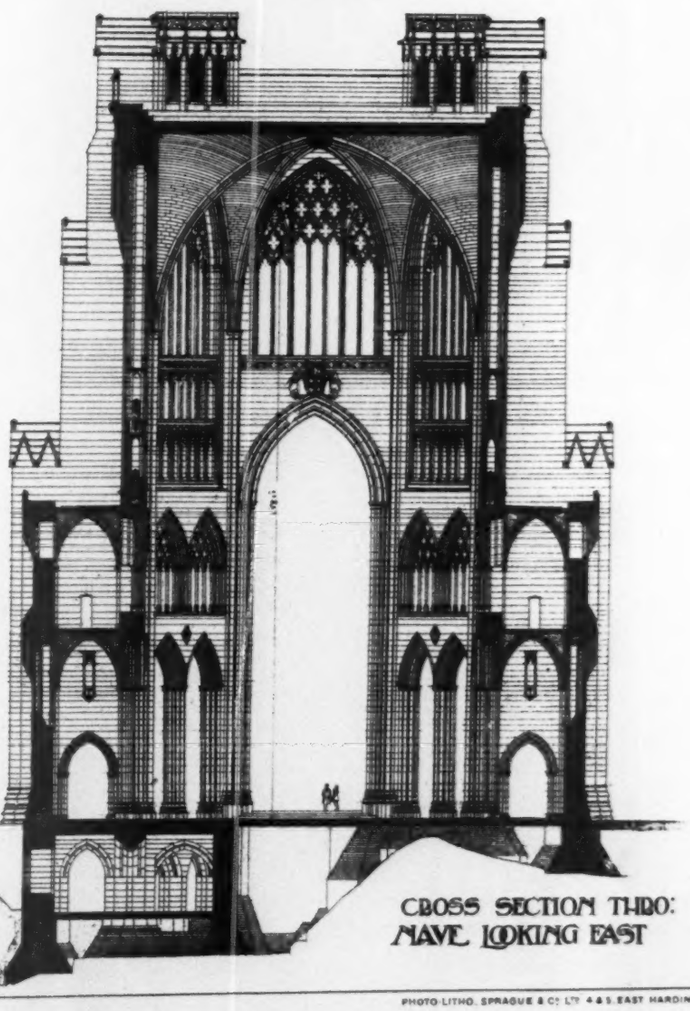




EAST ELEVATION



CROSS SECTION THRO: CHOIR LOOKING EAST

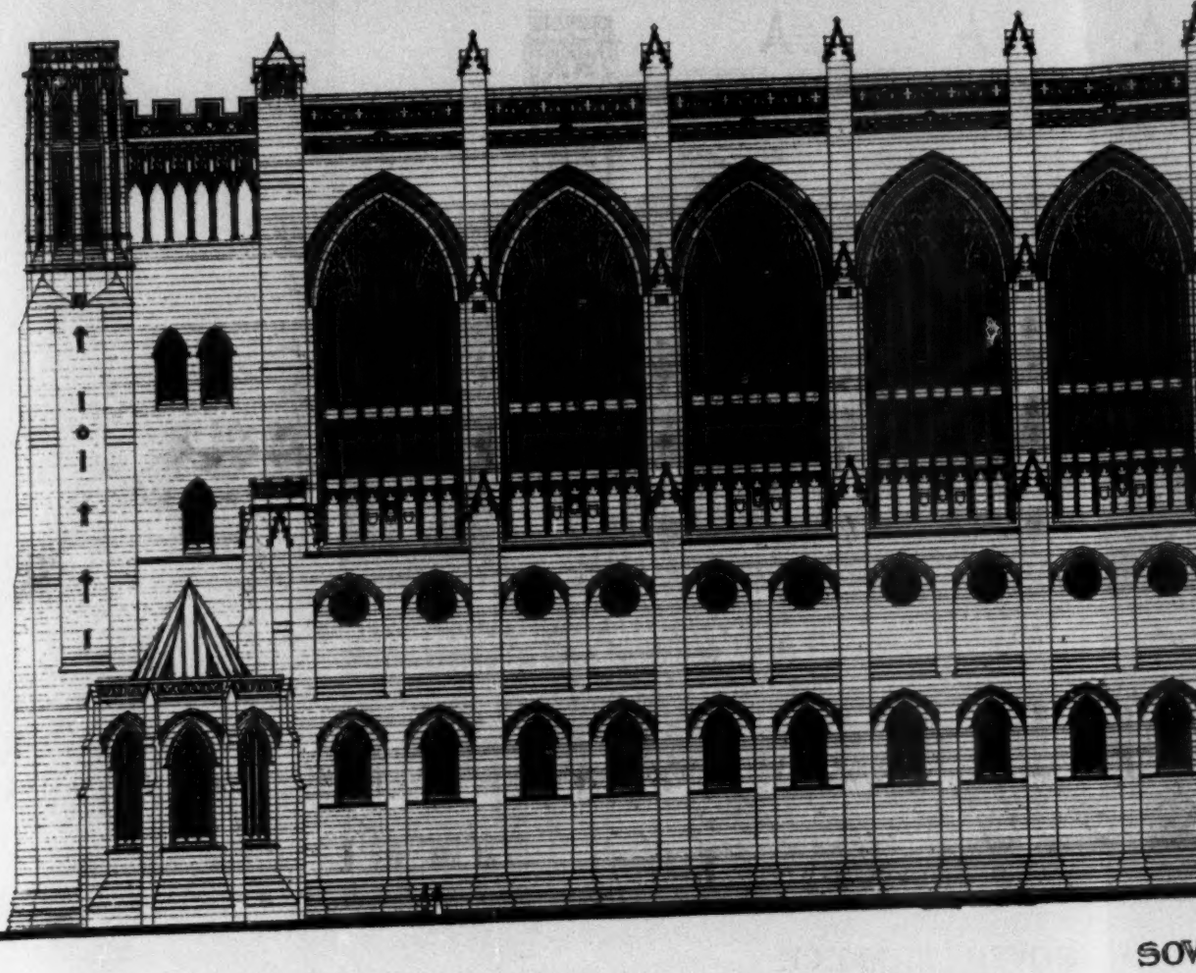


CROSS SECTION THRO: NAVE LOOKING EAST

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ORAL COMPETITION.—Design by Mr. W. J. Tapper, A.R.I.B.A.

DESIGN FOR THE CATHEDRAL CHURCH LIVE



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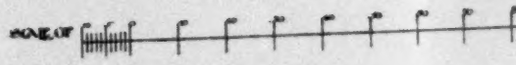

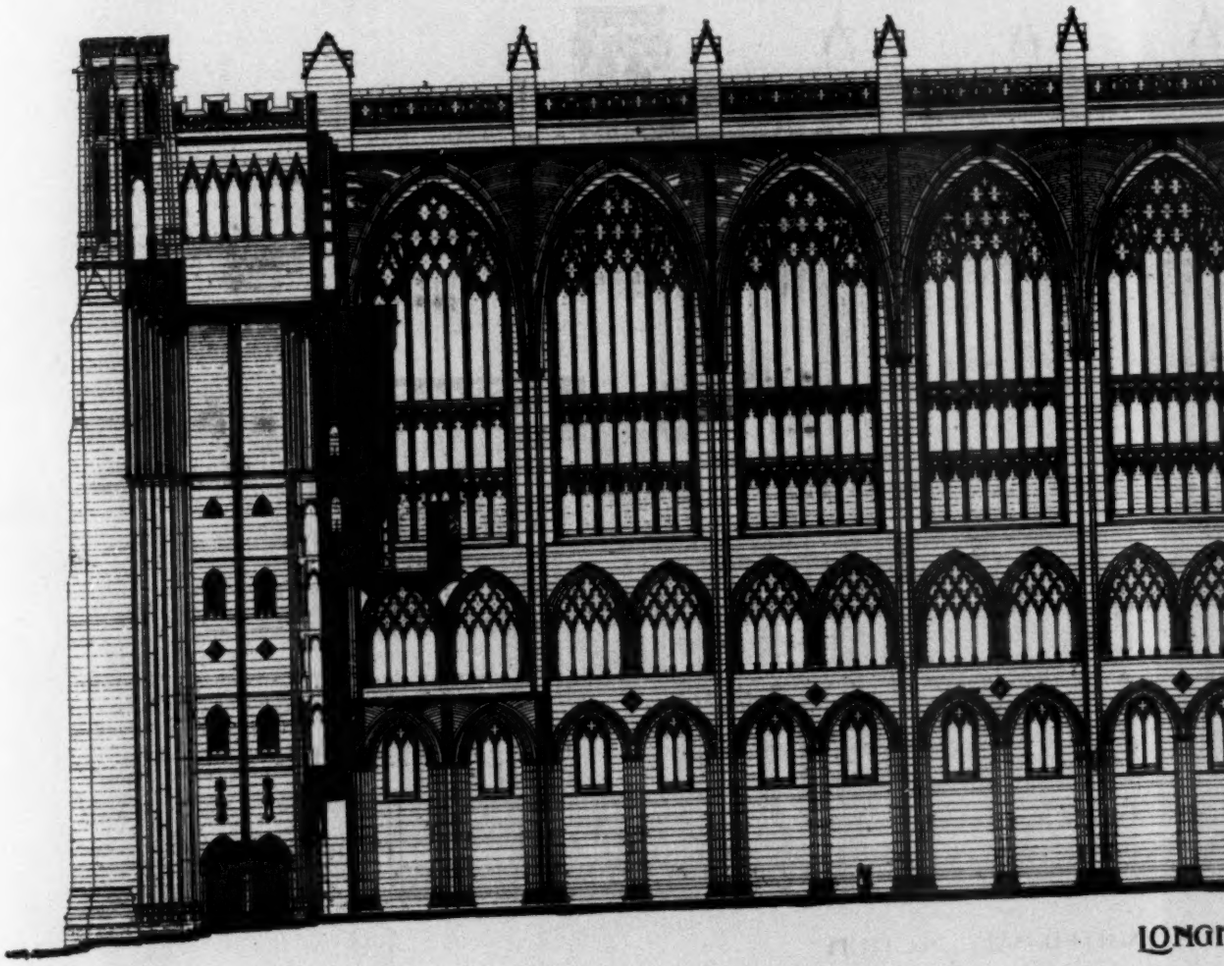

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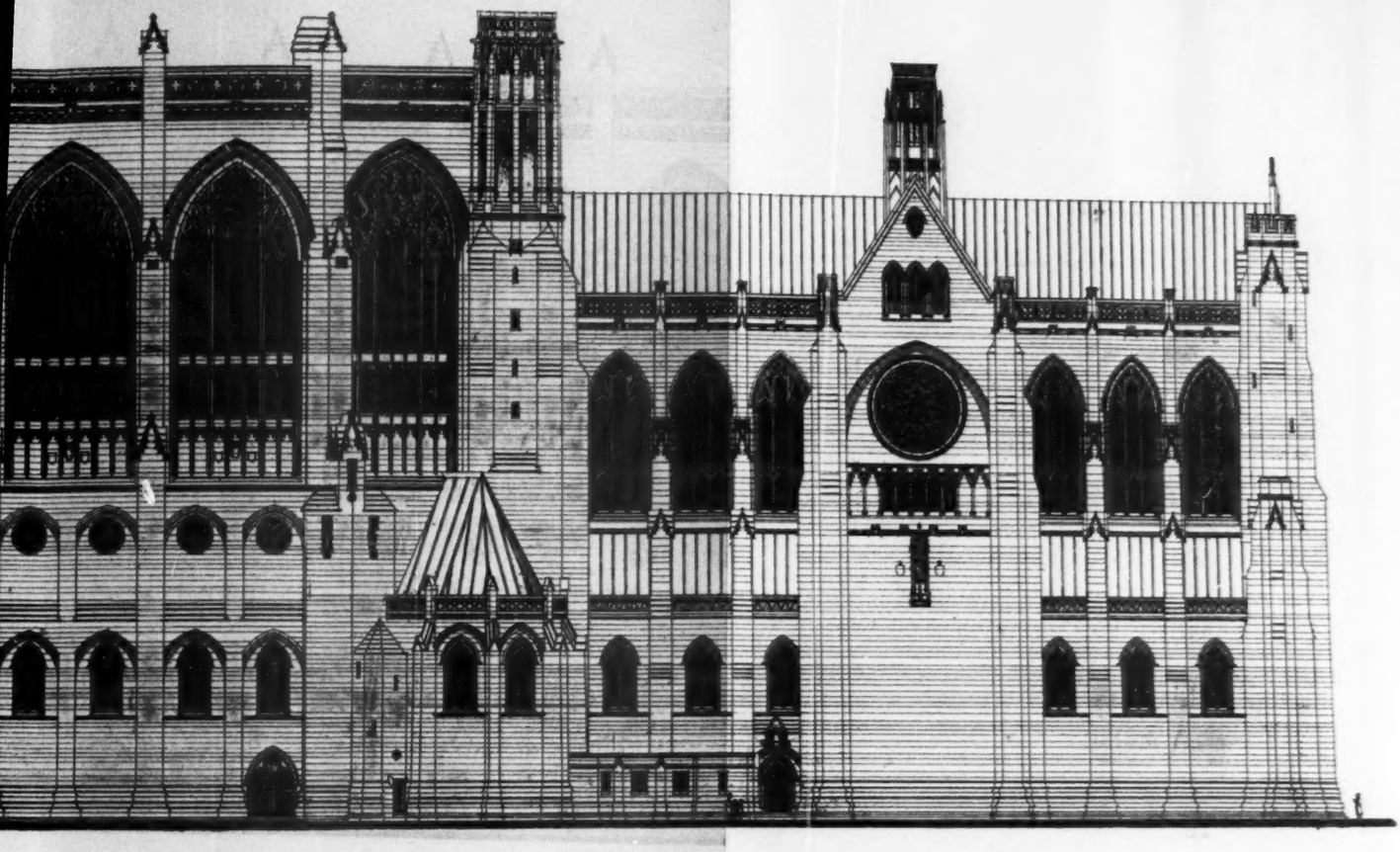
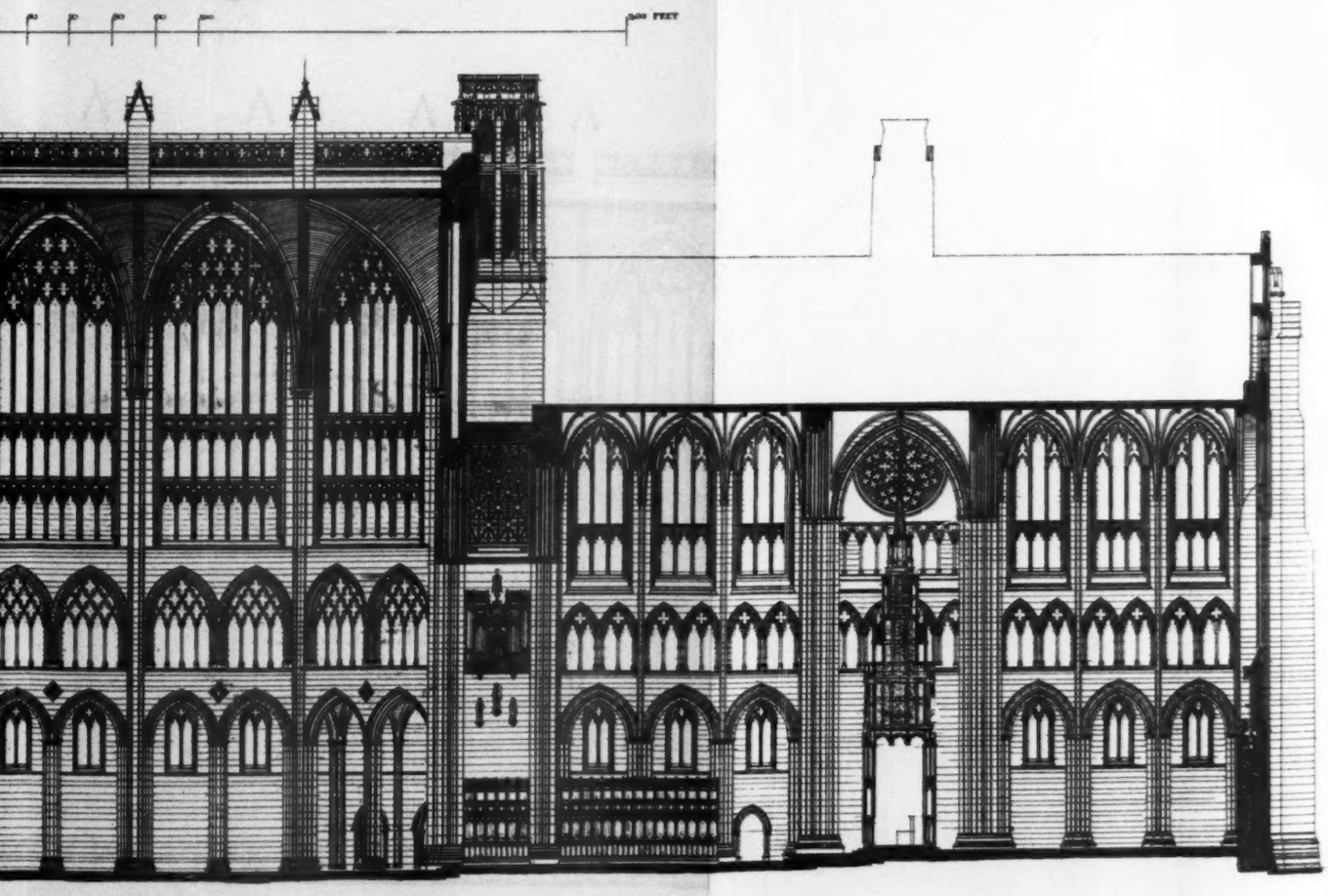


SOUTH ELEVATION

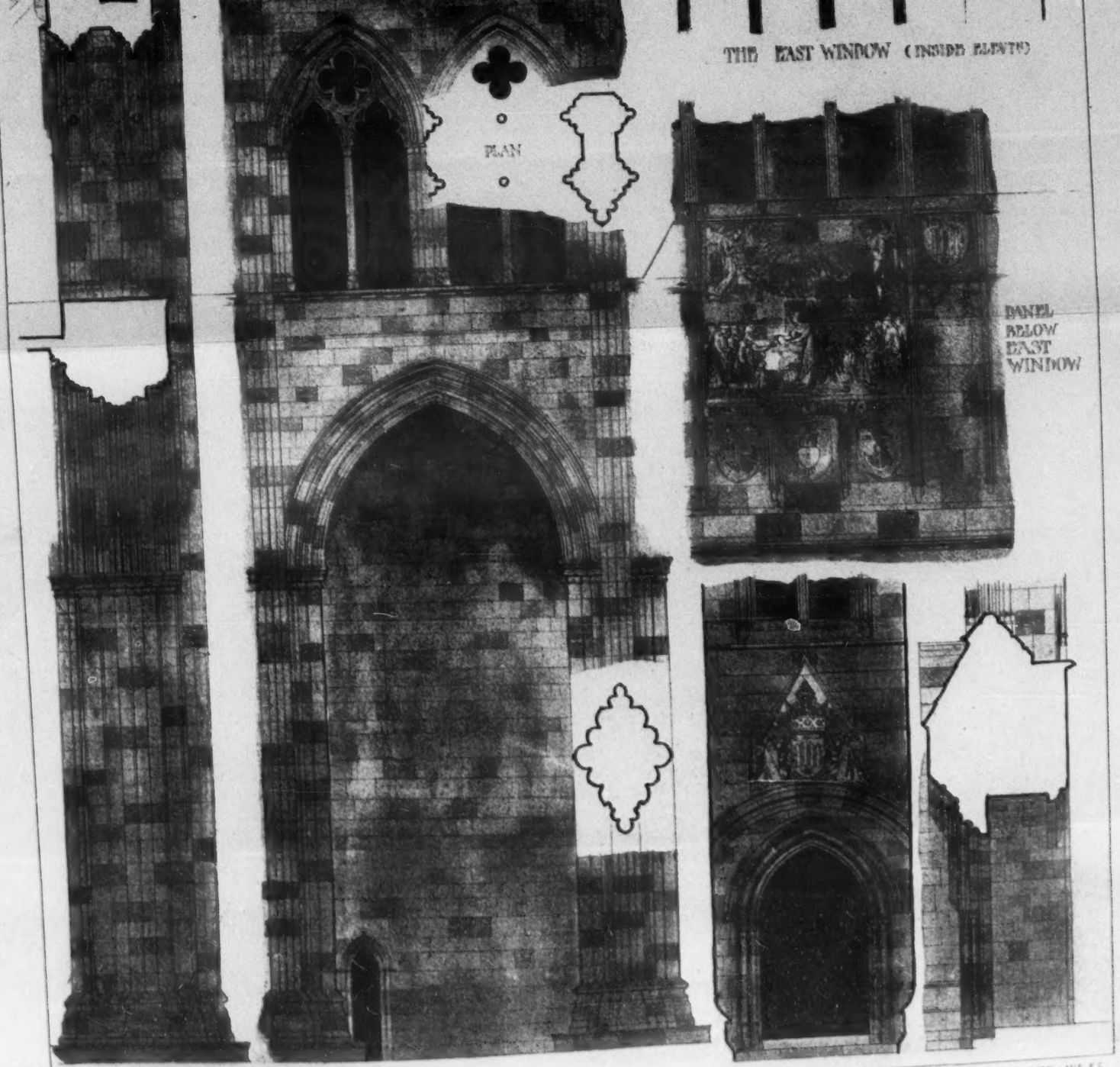


LONGITUDINAL SECTION

PHOTO-LITHO. SPRAGUE & CO. LTD. 4 & 5, EASY HARDING STREET, FETTER LANE, E.C.

DRAL COMPETITION.—Design by Mr. W. J. Tapper, A.R.I.B.A.

THE EAST WINDOW (INSIDE VIEW)



DESIGN BY MR. W. J. TAPPER, A.R.I.B.A.

the boiler-house in a temporary manner. The height might with advantage be from 24 ft. to 30 ft., and the floor should be sunk several feet. The walls should be built in cement mortar, and plenty of light should be provided by means of a number of large windows placed on the permanent side, and about one-fourth of the roof covered with patent glazing. The ventilation might be by means of hopper ventilators in the windows, and louvre ventilators in the roof. The floor might with advantage be paved with flags on 6 in. or 9 in. of concrete, and the trenches should be covered with wrought-iron checker-plates. The roof should be supported by steel roof trusses, and should be close-boarded. Drainage for the scum and blow-off cocks, water-gauge cocks, &c., should be provided. The coal bunker should be placed as near the furnaces as possible, and an inclined footway should lead to the boiler-house for the purpose of wheeling ashes out. Care should be taken in the arrangement of the doors, and the flues shou'd be lined with 9 in. of fire-brick, radiated bricks only being used. The accumulator-room should not be cramped for room; it should be light, well ventilated, and might be paved in the same manner as the engine-house. It should be not less than 13 ft. or 14 ft. in height. Two storerooms should be provided, one to contain heavy goods, the other oil, waste, and lighter goods. No works are complete without a meter-room. There should be a workshop sufficiently large to contain lathes, drilling and milling machines, fitters' bench, forge, &c. A convenient size is about 25 ft. by 14 ft. Ample lavatory accommodation should be provided. The engineer should have a private office, fitted up with desk, drawing table, cupboard, and other suitable fittings. A convenient size for the men's room is 20 ft. by 10 ft. The water-storage tank should be formed of square cast-iron plates, planed to template, and strongly stiffened with brackets, and flanged. Referring to the chimney shaft, the author observed that where the buildings were intended to be permanent a brick shaft should be erected, which might be square, octagonal, or round. The wind pressure on the two latter was stated to be considerably less than on the former, the relative pressures being: Square, 1·0; octagonal, 0·65; round, 0·5. The external width of the shaft at the base should be, if square, one-tenth of its height, if octagonal one-eleventh, and if circular, one-twelfth. The author then dealt with the foundation, observing that, given a good clay foundation, a chimney 150 ft. high might stand on a good bed of Portland cement concrete 5 or 6 to 1), 20 ft. or 22 ft. square by 7 ft. or 8 ft. thick. The concrete should remain three weeks before any brickwork was placed upon it, and all the bricks should be of the same density. He then dealt with the thickness of the brickwork, also the bond, which should be one course of headers to three or four courses of stretchers. The mortar, he said, should be lime mortar and not cement mortar, which was too rigid. The brickwork should proceed slowly, say 3 ft. or 4 ft. per day. He said the cap might be of iron, terra-cotta, or stone, and should not project more than the thickness of the brickwork. The shaft should be lined to a height of at least 30 ft. for ordinary heats with a fire-brick lining. The lightning conductor should not be carried around projections, but through them. The author then gave particulars of how the lightning conductor should be fixed; also as to how the inside diameter or area of a flue should be determined, and as to the height of a shaft.

ST. MICHAEL BASSISHAW CHURCH, LONDON.

THE church having been pulled down in March, 1900, the site, extending over an area of 5,000 ft. superficial, was let a few days ago, upon a building lease for eighty years at a rent of 1,280*l.* per annum, or 5s. 1½d. per foot, equivalent to, at, say, thirty years' purchase, a fee-simple of 334,890*l.* per acre. The church was built of brick in 1676-9 by Sir Christopher Wren, at a cost of 2,822*l.* 17s. 1d., on the site of one that had been erected in the middle of the fifteenth century; the original church was founded in or about 1140, with a patronage belonging to the prior and canons of St. Bartholomew-the-Great in West Smithfield. Wren cased-in the remains of the former tower, and decorated the interior with some very good plaster work; for the Corinthian columns that sustained the nave roof he employed balks of timber, lath-and-plastered, with plaster-cast capitals and cornice. The camerated ceiling, shaped into panels, had openings for light. The tower, 21 ft. square at base, and leaden lantern, rose to a total height of 140 ft.; the lantern, eight-sided on plan and in two stages, carried a concaved spirelet with finial and vane. King Henry III. bestowed the advowson of St. Michael's upon Adam, the son, it appears, of Salomon de Basinges, who in 1216-7 served as Mayor of the City. It might, indeed, be termed the "Lord Mayors' Church," for many holders of that office were buried there, amongst them being Sir James Yardforde (elected 1519), in a chapel he built for his own interment on the north side of the choir, and often cited in the churchwardens' books of account as "the great tomb," in charge of the Weavers' Company; Sir Richard Gresham (1537), and Sir John Gresham (1547), sons of John Gresham, of Holt, co. Norfolk; Sir Wolstane Dixie (1585), who founded the Divinity Lectures; and Sir Leonard Halliday (1605). A finely sculptured tablet, 1673, commemorated the labours of Dr. Thomas Wharton during the Great Plague. There, too, were buried John Barton and Agnes, his wife, munificent benefactors to the rebuilding in or about 1450, and Sir John Ayleph, Sheriff in 1548, who is depicted as one of the barber-surgeons in Holbein's painting of the Court of that Company receiving their charter from Henry VIII. The parish engine and watch-houses stood, 1681-1840, on the open space at the east end, formerly the churchyard, and levelled and paved in 1865. The City Lands Committee bought the site from the Ecclesiastical Commissioners for 36,000*l.* in 1899, and the parish was united to that of St. Lawrence Jewry. At the dismantling of the fabric the bell, cast in 1679, was transferred to the Church of St. Etheldreda, Fulham, whilst the highly decorative altar-piece and the two tables of the Decalogue, were secured for St. Michael's, Basing; a fourteenth-century stoup, and the large piece of carving, painted mostly in white, of the Royal Arms, with the Arms of the City at each side, which extended across nearly the entire width of the nave, against the west wall, were deposited in the Guildhall Museum. Of the proceeds of the sale of the site and materials, 12,000*l.* have been applied towards the erection and endowment of the church and vicarage house of St. Michael at Edmonton. The adjacent Basing, afterwards Bakewell, Hall, derived its name from the family who took their cognomen from Basing in Hampshire; whether the church was also styled after them has been questioned by some who would ascribe that affix to the Basils, or the Basings of an Italian origin who in the "Hundred Rolls" of 2nd Edward I. are named amongst the Lombards. A delivery of Infangthef of 13th Richard II., 1390, cites the parish of St. Michael Basieshaw in the Ward of Basyngshawe; in a "finalis concordia" made at Westminster in 23rd Charles I. we find the church mentioned as St. Michael Basingshawe. On clearing the site were found distinct vestiges of three different floors beneath the existing ground level, and the vault of Sir John Gresham, with an inscription, painted on plaster, recording his burial therein on October 30, 1556.

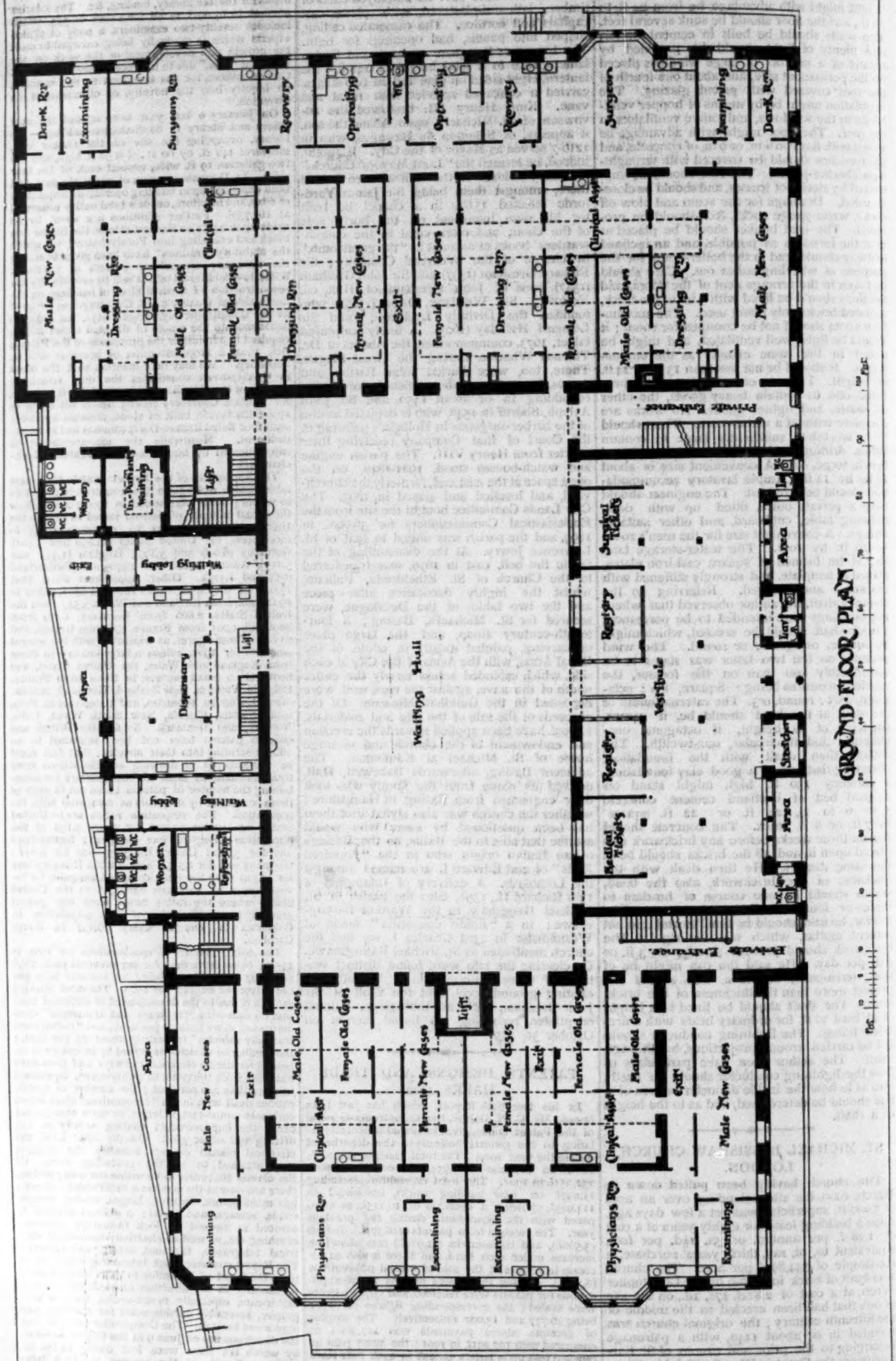
PATENTS, DESIGNS, AND TRADE MARKS, 1902.

IN his twentieth Report, which has just been issued, Mr. C. N. Dalton, the Comptroller-General of the Patent Office, gives tabulated statements relating to the general business of the department during the year 1902. The total receipts, 242,285*l.*, show an increase of 9,954*l.*, as compared with 232,331*l.* in 1901. The total expenditure, including 11,047*l.* on new building works, amounted to 114,925*l.*, showing a decrease of 10,115*l.*, as compared with the expenditure during the previous year. The receipts from patents (218,371*l.*), designs (3,566*l.*), and trade-marks (11,984*l.*) fees show an increase under each head, and there is also an increase in respect of the sale of official publications (8,364*l.*). During the twelve months 28,976 applications for patents were received, and 13,764 patents were sealed; the corresponding figures for 1901 being 26,777 and 13,062 respectively. The surplus of receipts above payments was 127,361*l.*, as compared with 107,291*l.* in 1901: the sums paid as renewal fees upon letters patent in each year since the existing scale was adopted have increased gradually from 88,856*l.* in 1893 to 137,945*l.* in 1902. Amongst the payments are items of 4,412*l.* for pensions, 22,950*l.* for printing, and 2,765*l.* for stationery, books for the free library, binding, &c. The salaries amount to 65,091*l.* 1s. 8d. for a staff of 335, which includes seventy-two examiners, a body of skilled experts which is gradually being enlarged to meet the growth and development of the work on the technical "side," due to the recent passing of an Act that establishes, for the first time in this country, an inquiry into the novelty, or otherwise, of an invention.

On January 9 last year were opened the new offices and library in Southampton-buildings—the library, occupying the site of the former one, measures 140 ft. by 60 ft., it is 50 ft. high, and has two galleries, 19 ft. wide, around each of the four sides. In December a sum of about 164,000*l.* had been expended upon building operations, acquisition of sites, and furniture, out of a total outlay estimated at 167,750*l.* Further additions are about to be made upon a site on the east side of the Staple Inn block and extending into Furnival-street, for which the statutory "notices" have been given to secure the necessary compulsory powers of purchase. Some few additional offices will be provided by the reconstruction of a small block of buildings on the north side of Quality-court, Chancery-lane; "but," as the Comptroller significantly says, "in order to accommodate the whole of the staff which will be required to administer the provisions of the Patents Act, 1902, a large extension of premises will be necessary." We may here mention that the block in Quality-court constitutes the only remaining portion of the old offices as designed by, it appears, Sir William Chambers shortly before his death in 1796; the façade, built of stone, presents an order with four fluted Roman-Doric columns and an angle-pediment. Meanwhile the accommodation is supplemented by hired rooms in Birkbeck Bank-chambers.

The Appendices of the Report contain some new tables which distinguish the countries of inventors to whom patents were sealed in 1900-1-2 and show the actual number of patents issued in 1901 in the United Kingdom (6,109 to nationals, 6,953 to foreigners), the United States (23,890 and 3,402), Germany (6,609 and 3,899), Belgium (1,435 and 5,217), Austria (1,028 and 2,376), and Switzerland (643 and 1,325). Other Appendices show that 17,627 of the applications received in London in 1902 came from England and Wales, 3,549 from the United States, 2,866 from Germany, 1,459 from Scotland, 1,001 from France, 376 from Ireland, and so on. Those figures, as compared with the several amounts for 1901, evince a large increase in those from England and Wales, the United States, and Scotland; a small increase in those from France, Belgium, Victoria, New Zealand, Germany, Russia, other European countries, and a decrease in those from Austria, Canada, New South Wales, India, Norway, and Denmark. So far, the British and Belgian patents have not been subjected to an official scrutiny into their novelty; that fact must be remembered in drawing any deductions from some calculations made at headquarters for ascertaining the number of patents taken out in each of those countries by nationals as compared with the population. The respective ratios are:—United States one native patent for every 3,196 of the population; Belgium one for 4,749; Switzerland one for 5,152; United Kingdom one for 6,811; Germany one for 8,525; and Austria-Hungary one for 45,720. On the *data* compiled, the palm for inventiveness by nationals belonged to the United States where the ratios range from one patent granted to every 1,080 of the population in Columbia to one to every 29,137 in South Carolina.

The total number of specifications for 1901 is 14,023, being more than for any previous year, 1896 and 1897 excepted, and being an increase of 9 per cent. over the number for 1900. The most striking growth is due to the development of electrical traction on rails—the "railways and tramways" class increasing more than 50 per cent., and "railway and tramway vehicles" increasing about 25 per cent.; the number of vehicles described by inventors as intended for use on electrical railways and tramways has risen from thirty-six to eighty-seven, equivalent to more than 240 per cent.; the number of specifications dealt with in the "locomotives" class, which embraces motor-cars, is larger by more than 30 per cent., the improvements relating mostly to the driving and other gear. On the other hand the electrical classes do not maintain the position they attained to in the preceding year. Of the classes that come more within our own province there are now at the maximum those which comprise gas manufacture, heating, hinges, mining, pumps, roads, sewage, and wood; a marked advance is evinced in respect of lock fastenings, grinding, crushing, &c., as well as electricity-conducting, electrical telegraphs, furnaces, lifting, and railways. The Report contains some interesting observations upon the trend of invention in 1902, which is more particularly in the direction of electrical traction, motor-cars, especially motor-cycles, wireless telegraphy, reversible outside seats for tramcars, and appliances for golf. The Comptroller remarks that the disastrous fire on June 9 in the City of London, by which ten lives were lost owing to the insufficient length of the escapes, led to a large increase in applications for fire-escapes, but this, he adds, lasted for only a short time. A transcript of the Act of 1902 is attached to the



New Out-Patients' Department, London Hospital.

report; the provisions of that statute as to the official search into the novelty of the invention described and claimed by the would-be patentee are at present in abeyance, since much preliminary work must be completed, and the official staff will require considerable augmentation and reorganisation to render it equal to the new duties which it is required to discharge. The number of volumes added to the library was 4,625, consisting for the greater part of text-books or periodical publications upon technical and scientifical subjects. The number of readers was 118,974, as compared with 101,584 in 1901, and the highest number recorded in any one year.

NEW OUT-PATIENTS' DEPARTMENT, LONDON HOSPITAL.

THIS building, which has just been erected, takes the place of the old out-patients' department, which occupied a part of the cramped, dark, and badly ventilated basement of the old west wing of the hospital. To form a site, it was necessary to demolish forty houses on the hospital estate. The building, as completed, is the largest of its kind in the United Kingdom, occupying nearly an acre of ground, but is only of an extent necessary to cope with the number of out-patients who require treatment. The total number treated last year was 162,147 persons, and it is anticipated that larger numbers will come to the enlarged department.

The building is entered from Oxford-street through a large vestibule, capable of seating 200 patients, in which are the registration and ticket offices at which new patients are registered and old cases receive their tickets. In the centre of the ground floor is a spacious waiting hall 105 ft. by 55 ft., and 40 ft. high, having seating accommodation for 1,000 persons. It has an open steel roof with a lantern the whole length in addition to large windows in upper part.

At the east end of the building there are two complete suites of rooms, forming the surgical department. Each suite consists of a surgeon's room 28 ft. by 19 ft., clinical assistant's room, an operating-room with a recovery-room adjoining, two examining-rooms, and in both male and female sides there are waiting-rooms for old and new cases with separate surgical dressing-rooms. At the west end is situated the medical department. This has also two suites of rooms, and each consists of physician's room, 30 ft. by 19 ft.; clinical assistant's room, two examining-rooms, and waiting-rooms for both old and new cases for each sex. After receiving their prescriptions, the patients pass out through two waiting-lobbies past the dispensary, and medicines, &c., are dispensed through eight hatches; the patients then leave the building by the exits into Green-street. This dispensary is connected to the laboratory in the basement by an electric lift and a separate staircase. A refreshment-bar is attached to the waiting-hall for the sale to the patients of light refreshments at nominal prices. Drinking fountains are provided both in waiting-hall and vestibule.

The general arrangement of the plan of the building ensures that the patients, after entering at Oxford-street, are sorted, and then proceed through the department in which their case is dealt with, and, after obtaining their medicine, leave by the exits into Green-street, without crossing the progress of other patients. This arrangement naturally facilitates the management of the great numbers which have to be dealt with by the officials. There are two private entrances from the street for the use of the staff and the officials. This out-patients' department is connected with the west wing of the hospital by means of a subway, which is constructed under Turner-street. This enables the officials and indoor hospital patients to get from one building to the other without crossing the public street, and allows of the medicine and stores from the laboratories to be taken direct into the hospital.

On the first floor are situated the aural, dental, obstetric, and massage departments, each of which are complete in themselves, having the necessary consulting, operating, and waiting-rooms. The aural department, at the east end, has a consulting-room, 60 ft. by 19 ft., fitted with thirteen tables; two operating-rooms, with anæsthetising and recovery-rooms and a darkroom; together with male and female waiting-rooms. The dental department, at the west end, consists of extracting and stopping-rooms, with anæsthetising and recovery, teeth-cleaning and waiting-rooms. The obstetric department has two consulting-rooms with dressing and waiting-rooms. The massage-room has waiting-room for each sex, and the staff sitting-rooms are also on this floor.

The second floor is devoted to the ophthalmic, photographic, and electrical departments. The ophthalmic department has rooms for surgeons and clinical assistants, large refraction and darkrooms, also operating-room with anæsthetising and recovery-room adjoining. There is a large photographic studio with two darkrooms and workshop and store attached, also a separate room for radiography. The electrical department has large consulting-room with electric bathroom, Röntgen ray room, and dressing-rooms adjoining. The Lupus department is also on this floor, and contains the "Finsen" lamp which Her Majesty presented to the hospital together with several other lamps. There are separate rooms for the surgical dressing of wounds, medical officer, and nurses. The motor-generators and other apparati for the transforming of the electric current to supply this department, are situated in a room in the roof above. Their Majesties will inspect, and the Queen will formally open, this department on June 11. These upper floors are approached by four staircases and two large lifts.

The basement contains a large laboratory department, fully equipped for the manufacture of medicines, pills, lozenges, and soda-water, and has large stores for drugs, dressings, and other necessaries for medical and surgical treatment. The bath department consists of medicated and Turkish baths with the necessary dressing and waiting-rooms, and is also in the basement together with the boilers, isolation-rooms and accommodation for students, dispensers, porters, and other officials.

The whole building is of fireproof construction, and the floors throughout finished with mosaic, and, where necessary, the walls are glazed with either glazed brick or opalite; the remainder are finished with sirapite plaster. The whole of the rooms throughout the building are fitted up with sinks, lavatories, and other fittings as required for the various purposes. The whole is fitted with electric light and electrical appliances. The internal and external areas are faced with white glazed bricks. The external elevations are of plain utilitarian character, being faced with red brick and artificial stone dressings. The large waiting-hall and principal rooms are ventilated by a system of inlet and forced outlet ventilation. The total cost of the building is 80,000*l.*, of which sum 20,000*l.* was given by a friend of the hospital. The balance of 55,000*l.* still remains to be collected.

The buildings have been carried out in accordance with instructions given by the Chairman and House Committee of the hospital, many months having been taken up in elaborating the scheme in consultation with the medical and surgical staff. The whole has been erected from the designs and under the superintendence of Mr. Rowland Plumbe, architect; Mr. Henry J. Wagg acted as consulting electrician, Mr. William Shepherd being the builder, and Mr. G. T. Murton clerk of works.

BOOKS RECEIVED.

STONEHENGE. By Arthur J. Ireland. (J. Henderson & Sons. 6d.)

TRANSACTIONS OF THE SOCIETY OF ENGINEERS FOR 1902. Edited by Perry F. Nursey. (E. & F. N. Spon.)

LETTERING FOR ARCHITECTS, ENGINEERS, &C. Compiled by John B. Thorp. (The London Drawing and Tracing Office.)

SUBJECT LIST OF WORKS ON ARCHITECTURE AND BUILDING CONSTRUCTION IN THE LIBRARY OF THE PATENT OFFICE. (Patent Office. 6d.)

RURAL WATER SUPPLIES. By C. J. Russell Maclean. (Sanitary Publishing Co. 1s.)

OLD ENGLISH DOORWAYS: A SERIES OF HISTORICAL EXAMPLES. By W. Galsworthy Davie and H. Tanner, jun. (B. T. Batsford.)

GENERAL BUILDING NEWS.

ENGLISH PRESBYTERIAN CHURCH, HOLYWELL.—This new church has now been completed. The site is in Whitford-street, and was purchased at a cost of 1,000*l.*, while the building has cost another 2,000*l.* The church has a frontage of red Ruabon brick, with ornamental tower, and has been erected by Mr. Richard Jones, contractor, Holywell, from the plans of Mr. T. G. Williams, architect, Liverpool.

RESTORATION OF BARTON CHURCH, WESTMORLAND.—This church has recently been reopened after undergoing restoration. The work has been carried out under the guidance of Messrs. Oliver & Dodgshun, architects, of Carlisle.

CATHOLIC SCHOOL CHAPEL, HULL.—The foundation-stone of the new Roman Catholic school chapel, St. Vincent de Paul, in Queen's-road, Hull, was laid on the 4th inst. The building comprises a mixed school, to accommodate 260 children. There is also accommodation for sixty infants, and two large recreation rooms are also provided. On the first floor a large chapel will seat about 350 people, with vestry attached. The cost is estimated at about 3,000*l.* Mr. A. R. Lowther is the architect and Mr. Levitt the contractor.

WESLEYAN BUILDINGS, LOWESTOFT.—The memorial stones have just been laid of new Wesleyan buildings which are to be built at the corner of Lorne Park-road. The present building, which is eventually to be converted into class and school-rooms, is 36 ft. wide, 53 ft. long, and 36 ft. high to the centre of the ceiling; it is built of red brick, with white stone dressings. Internally the walls are of plaster, with a pitch-pine roof, hammer beam trusses, and plaster ceiling. The gallery has a stone staircase, and the building two entrances, one in Lawson-road and the other in Lorne Park-road. The building is to be lit by electricity. The architect is Mr. G. E. Smith, of Southsea, and the builders are Messrs. Smith & Wolff, of Lowestoft, the stone-work being supplied by Messrs. Wolff & Brown, also of Lowestoft.

CONGREGATIONAL CHURCH, ANNAN, DUMFRIESSHIRE.—The new Congregational Church at Annan was opened on the 4th inst. The building is of red freestone, and situated in Fruids' Park, off Greenscroft Wynd. The entire cost was 3,500*l.*, including a hall for the Sunday school. The architects were Messrs. Johnston Bros., Carlisle, and the builders Messrs. J. Rae & Sons, Annan.

GRAMMAR SCHOOL, HIGH WYCOMBE.—New buildings are being erected for the Royal Grammar School at Wycombe. The buildings, which have been designed by Mr. Arthur Vernon, the architect of the existing school, will be of white Gault bricks, with red brick facings and a tile-covered roof. The physical laboratory is 28 ft. long by 21 ft. 6 in. wide and 18 ft. high, and has balance-room and store adjoining it. The manual instruction-room is 24 ft. long by 18 ft. wide and 13 ft. 6 in. high. Adjoining the central lobby is a cloak-room. The patent Acme wood-block flooring is to be used throughout the building. The contract for the new building is being carried out by Messrs. Hunt & Son.

PRIMITIVE METHODIST BUILDINGS, SKERTON, LANCASTER.—The memorial-stones have just been laid of a new Methodist school to cost about 900*l.*, being the first portion of a larger scheme estimated to cost altogether 2,400*l.* The old site in Main-street is being utilised, with the addition of adjoining cottages and land at the rear. When completed the scheme will embrace a chapel, with seats for 280 persons, organ chamber, and vestry; a school, with main room 45 ft. by 19 ft. 6 in., and two class-rooms 19 ft. by 16 ft., tearoom, lavatories, &c. The buildings will be of stone, standing slightly back from the street line, and enclosed within railings. Mr. J. Parkinson, Lancaster, is the architect, and the contract has been let to Messrs. T. Mawson & Son, builders, Lancaster.

BUILDING IN ABERDEEN.—The Plans Committee of Aberdeen Town Council have approved of the plans of the following new buildings:—Dwelling-house on the north side of Queen's-road, for Mr. A. S. Macdonald, per Mr. R. G. Wilson, architect; dwelling-house on the north side of Murray-terrace, for Mr. Peter Appell, per Messrs. D. & J. R. M'Millan, architects; alterations in connexion with premises, No. 3, Bridge-street, for the Great North of Scotland Railway Co., per Mr. P. M. Barnett, engineer; twenty dwelling-houses on the north side of Leslie-road, for Mr. Alex. Young, builder; alterations and additions in connexion with granary in lane on the west side of Rose-street, for Mr. William Scorgie, per Mr. A. J. Murray, architect; smithy on the north-east side of Skene-square, for Mr. Adam Anderson, per Mr. Harvey Mennie, architect; cooperage on the east side of Hanover-lane, for Mr. John Robertson, per Messrs. Brown & Watt, architects; three dwelling-houses on the south-east side of Bedford-road, for Mr. James Malcolm, per Mr. W. E. Gauld, architect.

ARTIZANS' DWELLINGS, BRIGHTON.—The Sanitary Committee of the Brighton Town Council have submitted to the Council plans by the Borough Surveyor for the erection of self-contained semi-detached dwellings and tenement dwellings on the Spa-street area, for the accommodation of 336 persons of the labouring class displaced by the Improvement Scheme. The two designs of houses, the semi-detached to let at 13*s.* 6*d.* per week and the tenements at 7*s.* 9*d.* per week each tenement, were submitted, and it was stated by the Surveyor that the double tenements occupy about one-third of the area to be built upon, and are placed at the northern end of the street, five on each side. The frontage into Edward-street is to be occupied by shops. The plots for the houses in the new street have a depth of from 60 to 66 ft., and those for the shops vary in depth from 60 ft. to 81 ft. There are to be twenty-eight self-contained houses, ten tenement dwellings, and eight dwelling-houses and shops. The first will cost 533*l.* 10*s.* 10*d.* each, with land; the second 622*l.* 2*s.* 6*d.*; and the last 613*l.*

HOUSE, CROMAR, ABERDEEN.—Lord Aberdeen intends to erect on the Cromar estate a new building to take the place of Tarland Lodge as a family residence. The main block of the house will be 102 ft. by about 50 ft. The architects are Messrs. Sidney Mitchell and Wilson, Edinburgh. The external walls are to be built of red granite quarried from the Hill of Redlick. For the inside walls a grey granite is being quarried in the immediate vicinity of the site, and the material for the main doorway is to be freestone from Auchindoir or Elgin. Mr. Rankin, Edinburgh, has been appointed clerk of works, and the successful contractors are:—Mason, Mr. George Hall, Aberdeen; carpenters, Messrs. D. Macandrew & Co., Aberdeen; plasterers, Messrs. Rodger & Baxter, Aberdeen; slater, Mr. Cumming, Tarland; roadmaker, Mr. Geo. Masson, Tarland.

SANATORIUM, WINSLEY, WILTSHIRE.—The foundation-stone has just been laid of the sanatorium for consumptives which is to be erected at Winsley, near Limpley Stoke. The building consists of a long, narrow block, one room deep, with a corridor immediately behind, and of two stories in height, except at each end, where six servants' bedrooms are provided upon the second floor. The block containing the dining-hall and kitchen and offices connected therewith is detached from the main block, being approached by a paved walk roofed over. The length of the main building is

194 ft. 6 in., and the depth 23 ft. only, and it contains upon the ground floor a reception-room, four rooms for the use of the resident physician, two rooms for the matron, and six bedrooms for patients. A cloak-room is placed at each end of the building, and opposite are two projecting wings containing the staircases, bathrooms, lavatories, water-closets, and housemaids' closets, all being separated from the corridors by cross ventilated passages. The first floor is arranged in an exactly similar manner, and contains, in addition to the above-mentioned sanitary provisions, sixteen bedrooms, fourteen of which are for patients and the remaining two for nurses. The corridor is 6 ft. wide, with three bay windows at intervals. At each end are the exit doors with ventilating fan-lights over. All the rooms are 13 ft. 6 in. by 11 ft. 6 in., and 10 ft. and 9 ft. 6 in. high upon the ground and first floors respectively, and each room is lighted by windows extending right up to the ceilings. The windows throughout are wooden casements and frames with mullions and transoms, every light opening; the parts below the transoms being hinged at the sides and opening outwards, and those above hinged at the top and opening in a similar manner. In the walls opposite to the windows and above the level of the door-heads, the whole width of each room is filled in with casements and frames extending to the ceiling, every one opening upon centres. Some of the bedrooms are provided with fireplaces for use in certain cases, but the building is to be heated throughout by hot water upon the low pressure system, radiators being provided in the corridors, &c., and in each room. The dining-hall is 33 ft. by 27 ft., and capable of accommodating sixty patients. The room is lighted by eight windows, three on each side and two at the end, where the main entrance is placed. At the opposite end is the serving-room, provided with a hot plate, butler's sink, and cupboards for china, glass, plate, &c. Opposite the serving-room is a large storeroom. Communicating with the serving-room is the kitchen, 20 ft. by 16 ft., and beyond is the scullery. Adjoining the kitchen is a servants' hall, 10 ft. by 13 ft. The dairy and larder are placed outside, and approached by a covered way. A small enclosed yard is provided, in which are placed the coal store, servants' water-closet, and the approach to the heating-chamber and coke store, which are under the kitchen and servants' hall. The interior of the building throughout is finished with hard plaster, and circular angles are everywhere provided, right angles, flat surfaces, and mouldings wherever possible being avoided. The drains will be of Doulton's salt-glazed stoneware socketed pipes, jointed in cement. The drainage from the building will be discharged at the bottom of the hill, and will then be dealt with by the Bradford District Council, who will provide a separate system for the sanatorium and a few houses in the neighbourhood. The builders are Messrs. Jacob Long & Sons, of Bath, whose tender of 6,877*l.* was accepted. Messrs. Silcock & Reay were the architects.

EMPIRE THEATRE, ST. HELENS.—The new Empire Theatre, which has been erected on the site of the old People's Palace in Corporation-street, St. Helens, was opened recently. The theatre will hold 2,000 people, and has cost 13,000*l.* It has been erected to the designs of Mr. J. A. Baron, of St. Helens, the builder being Mr. James Pilkington. There are ten boxes and two tiers of balconies, the dress circle and upper circle on the first, and the amphitheatre and balcony above. The stage is 58 ft. wide by 37 ft. 6 in. long, and the proscenium opening is 25 ft. All the lighting will be by electricity.

CHURCH, BARRY DOCK.—The tender of Mr. W. A. Cadwallader, builder, Cardiff, at 5,958*l.* 18*s.*, has been accepted for the erection of the new Church of St. Mary, Holton-road, Barry Dock. The building will be carried out from plans prepared by Mr. G. E. Halliday, architect, Cardiff, and will provide accommodation for 650 worshippers.

BOARD SCHOOLS, NEWPORT.—New Board schools were opened recently in Corporation-road, Newport. The estimate for the work was 18,000*l.* The schools have a frontage of 220 ft. to Corporation-road and 200 ft. to Milner-street. The schools are designed and built to accommodate 600 boys on the first floor and 600 girls on the ground floor, with a separate entrance from Milner-street, off the main road. The architects were Messrs. Linton & Barker, Newport, and the contractor Mr. John Charles, and the clerk of works Mr. S Hutchins.

RAGGED SCHOOL, IPSWICH.—The reconstructed boys' school in Waterworks-street, Ipswich, has just been opened. The work of renovating the building, which was included in the original improvement scheme, has been carried out by Mr. Chas. Roper, from the plans of Messrs Eade & Johns. The side walls and roof, built in 1857, have been retained, but the façade of the building has been entirely reconstructed, with the object of locating the infants' classroom in a more convenient position. As the building now presents itself, the infants' room is at the front; whilst at the rear there are two classrooms on the ground floor, and a classroom over head on the first floor.

WORKHOUSE INFIRMARY, BIDEFORD.—The new workhouse infirmary which the Bideford Board of Guardians have built to take the place of the old buildings previously used for the accommodation of the sick poor was opened on the 2nd inst. At the rear of the workhouse, on a portion of the garden the Guardians have erected at a cost of 3,248*l.*, a building capable of accommodating about forty patients. It is 120 ft. long and 42 ft. high, and is built of Morland brick with red brick dressings. On the ground floor are a large men's ward, capable of holding fourteen beds, men's day room, separation ward, ward kitchen, and private room for the medical officer with dispensing store. On the first floor there are a women's ward of the same size as the men's, dayroom, separation ward, labour ward, and lying-in ward. Over the main entrance an additional story has been built, and here are the bed sitting-rooms of the nurses. The floors of the lower apartments are of wood blocks. Messrs. R. T. Hookway & Sons prepared the plans, and Messrs. Ellis & Son were the builders.

SCHOOLS, PURLEY.—On the 6th inst., at the Warehousemen, Clerks, and Drapers' Schools, Purley, a new wing which has been added to the boys' quarters was opened. The work has been executed by Messrs. Buckland & Waters, of Redhill, for the contract sum of 4,375*l.*, from the designs and under the superintendence of the architect, Mr. George Lethbridge, of Drapers-gardens.

PUBLIC LIBRARY, BARRY.—The Barry Urban District Council are about to erect a central public library at Barry. The architects are Messrs. Hutchison & Payne, of London, and the building will probably cost about 10,000*l.*

NEW POLICE-COURT, YSTRAD.—A new police-court for the Upper Rhondda Sub-division was recently opened at Ton. It has been erected from the designs of Mr. R. S. Griffiths, architect, at a cost of 3,500*l.* Messrs. Morgan Bros. were the builders.

OPERA HOUSE, BUXTON.—A new opera house has been erected at Buxton at a cost of about 25,000*l.* The new house stands at the entrance to the Gardens, with elevations to the Square and St. John's-road. It has been erected on the site of the old entrance and reading-room, and a new entrance to the Gardens has been constructed on the left. This is a continuation of the theatre frontage, and the whole forms practically a crescent with a wide carriage-drive. The opera house is in the Italian Renaissance style. In the centre of the principal façade is the grand entrance, with an outer balcony over, leading from the dress-circle saloon, and tall towers, terminating in domed roofs, flank the centre façade. The vestibule is marble-lined, and has a painted ceiling and mosaic marble floor; the grand staircase, which runs down to it, is of polished white marble, with alabaster scrolls at the foot and marble seats at the side. The theatre consists of pit, dress-circle, six private-boxes, upper circle, and gallery, and provides seating accommodation for at least 1,200 persons. Its colours are blue and gold and cream. The whole decoration is in the style of Louis XVI. The ceiling takes the form of an elliptical dome, and is ornamented with a number of painted panels. An entrance has been provided direct from the Gardens to the dress-circle and stalls. There are two refreshment saloons. Mr. F. Matcham was the architect.

ADDITIONS TO MORNINGFIELD HOSPITAL, ABERDEEN.—For about a year alterations and additions to Morningfield Hospital for Incurables have been in progress, and these have now been practically completed. A new hall has been erected, which has an entrance from the main corridor of the hospital. The length of the hall is 42 ft. 6 in., and the breadth 24 ft. 6 in., while the height from floor to ceiling is 17 ft. The hall will be heated by radiators, as will also the corridors, new heating apparatus having been fitted up. The kitchen has been doubled in size. The floor has been laid with granitic octagonal tiles, while the walls to a height of 5 ft. have been covered with white tiles. A new scullery has been added to the hospital, and new bathrooms have been provided. The matron's rooms have been reconstructed, and a room has been provided for the medical officer. On the west side of the hospital a verandah has been constructed. All the walls in the different rooms in the hospital have been repainted, and the woodwork revarnished. The whole cost of the work amounts to between 3,000*l.* and 4,000*l.* The architects are:—Messrs. Kelly & Nicol; and the contractors—Mason work, Mr. Charles Gordon; carpenter work, Messrs. D. M'Andrew & Co.; plumber, Mr. Walter Simpson; plaster work, tiles, &c., Messrs. James Scott & Sons; slater, Mr. George Davidson; painters, Messrs. G. Donald & Son; ironwork, Messrs. James Abernethy & Co.; heating apparatus, Messrs. M'Kenzie & Moncur, Edinburgh. Mr. J. K. Pirrie has acted as clerk of works, and also superintended the laying out of the ground.

TECHNICAL INSTITUTE, RICHMOND.—This building is situate on a site in Gladstone-road, and is intended to form the local centre of the technical and art instruction conducted by the Surrey County Council. It has been erected by Messrs. T. H. Kingerlee & Sons, contractors, of Oxford, from the designs and under the superintendence of Mr. George Hamblin Fox, architect, John-street, Adelphi, W.C., and Putney, S.W. Externally the building is constructed of red facing bricks with Bath and Portland stone dressings, and relieved by ornamental carvings and the arms of the county and town. A stone entrance portico gives access to the main corridor and staircase. The accommodation provided is of three kinds: workshops for the practical demonstration and execution of the various trades and industries taught, classrooms for lectures and theoretical study, and studios for the art department. On the ground floor are four large workshops, fitted up for the bricklaying, carpentering, electric wiring, and plumbing trades. On the first floor are four large and two small classrooms for various technical and scientific subjects. The second floor is devoted to the art department, and comprises four studios for drawing and painting, modelling, and other art subjects, also an art master's room. In the attic story suitable accommodation is provided for the attendant and caretaker. Space has been secured to the rear of the site for any future extension that may be demanded by the growing needs of the town and district.

SCIENCE BUILDINGS, COLSTON'S GIRLS' SCHOOLS, BRISTOL.—New buildings have been erected at Stapleton for the use of the students attending the Colston's Boarding School. The new buildings have been erected on a portion of the playground to the north of the main block, and they consist of chemical and physical laboratories and lecture-hall, with balance and preparatory rooms. The new buildings were designed by Messrs. Walter S. Paul & James, architects, Bristol. The contractor for the general work was Mr. F. Chown. The heating and ventilating apparatus was entrusted to Messrs. James Crispin & Sons. The sanitary work and laboratory fittings are by Mr. G. F. Tuckey. Messrs. L. Thomas & Son supplied the fittings.

HOSPITAL EXTENSIONS, LEITH.—The new pavilion and nurses' home, which have been added to Leith Hospital at a cost of about 25,000*l.*, have just been opened. Properties were purchased adjoining the East House on one side of King-street and immediately opposite on the other side. On the first site a commencement was made with the Jubilee Pavilion towards the end of 1898, and as it stands now it is a three-story building, about 150 ft. long, built of ashlar. The three floors give a total accommodation of sixty-three beds, and at the end of each of the main wards is a dayroom for the use of convalescent patients, a nurses' room, doctors' room, and ward kitchen. There is a lift, driven by electricity, and capable of conveying the ambulance waggon with patients to the different floors. This new portion of the hospital is to be devoted solely to the treatment of surgical cases. The Nurses' Home, on the opposite side of King-street, is connected with the main portion of the institution by an electrically lighted subway, which runs under King-street to the Jubilee Pavilion. The Home, which has been built in the old Scottish style — harled, with stone dressings — contains separate bedrooms for thirty-three nurses, dining-halls for nurses and servants, a sitting-room and a reading-room, and in the rear of it new offices—a kitchen, laundry, boiler-house, engine-house, and disinfector—have been erected. The plans were prepared by Mr. W. A. Thomson, architect, Leith.

FOREIGN.

FRANCE.—The monument to Charles Garnier at Paris is at last to be inaugurated, on the 20th inst. The base of the monument, in red granite, has been designed by M. Pascal; the pedestal, decorated with garlands in bronze executed by M. Germain, shows a plan of the Opera House engraved on a bronze plate. At the summit, between two reclining figures representing "Le Travail" and "L'Avenir," the work of M. Thomas, is the bronze bust of Garnier by Carpeaux.——A monument to Pasteur was inaugurated last Sunday at Chartres. This is the work of Mr. Richer, a member of the Académie de Médicine who is at the same time an able sculptor, and consists of a large alto-relief in bronze representing a scene in Pasteur's experiences which took place in the outskirts of Chartres. A simple architural design serves as framework to this relief, the whole being surmounted by a marble bust of Pasteur. ——An orphanage for the children of sailors is to be built at Boulogne.——The town of Coutances has opened a competition for erection of a new Savings Bank, and for a new facade to the Hôtel de Ville. ——The municipality of Auxerre has voted a sum of 1,367,000 francs for important street improvements in the town.——The Prefect of the Seine has refused to ratify the proposal (mentioned in our last "Letter from Paris") to give the name of Charles Garnier to a street on the site of the ancient prison of La Roquette, and a street near the Opera is to bear his name.——The Minister of Public Works has opened the new baths establishment at Vichy, where the "Trinck-hall" and the Casino have been built from the designs of M. Charles Le Cœur, with the collaboration of M. Séguin as sculptor.

INDIA.—An office for the district office of the Locomotive, Engineering, and Traffic Departments is to be built at Henzada Station. Residences for the officers are embraced in the scheme.——The Secretary of State has sanctioned the construction by the Bengal and North-Western Railway Co. as integral parts of their main line many extensions on the metre gauge.——Since Maymyo has been selected as the hot weather residence of the Burma

Goverament, the place has grown immensely. The improvements are mainly due to the Public Works Department. A hospital is nearly completed, as well as barracks for European soldiers. A wide circular road is nearly finished, and road construction generally is well to the fore.

SOUTH AFRICA.—The building trade is still very brisk in almost all parts of South Africa, thanks to the building "booms" that have grown out of the overwhelming demand for increased housing accommodation. Indents for builders' materials are naturally very heavy in favour of Home manufacturers, who will be interested in the following list of prices ruling at Johannesburg: Portland Cement, 37s. 6d. to 40s. per cask; lime, 5s. 6d. to 6s. 6d. per bag; bricks, slop (not burnt), 35s. per 1,000; common stock, 50s. to 55s.; good machine stock, 80s.; facing bricks, anything up to £7 10s., according to quality; deals, up to 17 ft., 11d. per ft.; 18 ft. and 19 ft., 11½d.; 20 ft. and over, 1s.; ceilings, 3d.; floorings, 4½d.; windows, 8 by 10, 30s.; 10 by 12, 35s.; 15 by 30, 42. 6d.; 18 by 36, 50s.; doors, 2 ft. 6 ins. by 6 ft. 6 ins. by 1¼ ins., 14s.; 2 ft. 6 ins. by 6 ft. 6 ins. by 1¼ ins., 15s.; 2 ft. 8 ins. by 6 ft. 8 ins. by 1¼ ins., 15s. 6d.; galvanised iron, 6, 7, 8, 9 ft., 6½d.; 10 ft., 7d. to 7½d. per ft.—*South Africa.*

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The London agent for "Magnalium," the new alloy mentioned in a "Note" in our issue of May 30 (p. 559) is Mr. T. Arthur Williams, 92, Hatton-garden, E.C.——Mr. Bertram Blount, consequent on the death of his partner Mr. Stanger, has removed his Chemical Laboratory and Testing Works from 2, Broadway, to 76-78, York-street, Westminster, where the practice will be continued under his own name.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—The annual dinner of the Institute will be held on Tuesday, the 23rd inst., at the Whitehall Rooms, Hotel Metropole, at 7 for 7.30 p.m. Among the guests who have accepted invitations are his Excellency the American Ambassador, the Earl of Wemyss, the Earl of Lichfield, Viscount Dillon, Lord Monkswell, Lord Redesdale, the Bishop of London, the Lord Mayor of London and the Sheriffs, the Principal of the University of London, and Mr. Charles F. McKim, the Royal Gold Medallist for the year. Members who intend to be present are particularly requested to send in applications for tickets by Thursday, the 18th inst. Members' tickets are 21s., and their guests' 25s. Cheques should be made payable to "the Secretary R.I.B.A."

DISTRICT SURVEYORS' DINNER.—On Thursday last week the District Surveyors under the London Building Act dined at the Criterion Restaurant. Mr. Alexander Payne, President, in the chair. Among other members present were Messrs. J. Douglass Mathews, B. Tabberer, H. H. Collins, A Conder, J. Clarkson, S. F. Clarkson, J. Goodchild, G. McDonell, Ernest Carritt, W. L. Spiers, H. Cheston, W. Grellier, A. Tanner, E. R. Hewitt, F. W. Hamilton, Ellis Maraland, A. H. W. Glasson, E. Street, O. C. Hills, C. T. Coggin, W. H. Lees, B. Dicksee, E. Dru Drury, T. H. Watson, F. Wallen, Hon. Treasurer, and Henry Lovegrove, Hon. Sec. No visitors were invited, the dinner being limited to present and past District Surveyors, the latter being represented by Mr. Thomas Blashill and Mr. Alfred Williams.

VICTORIA HALL, SUNDERLAND.—The Corporation of Sunderland recently invited designs for alterations and additions to the Victoria Hall, Sunderland, and offered premiums of 100*l.*, 50*l.*, and 25*l.* for the first, second, and third designs respectively. The result, just made known, is as follows:—First, Mr. J. Eltringham, Sunderland; second, Messrs. Hall, Jones, & Cummings, Westminster; and third, Messrs. Perry & Angell, London.

THE LEYSIAN MISSION HOUSE, CITY-ROAD, E.C.—The new premises, of which the erection has been just begun after the plans and designs of Messrs. Bradshaw & Gass, of Bolton, as selected in competition, will constitute the headquarters of the mission-settlement attached to Leys School, Cambridge. That mission was originally established in Whitecross-street in 1886, and was removed four years subsequently to Errol-street, near Bunhill Fields. The site, which adjoins the Alexandra Trust dining-rooms in City-road, is appropriated for a hall having a capacity for 2,000 sittings; a smaller hall for 600 (to be added hereafter); twenty-three classrooms for Sunday school and other educational uses; separate sets of clubrooms for boys, girls, men, and women respectively, with a gymnasium and a drill-hall for the boys' brigade; an "Old Leysian" settlement for visitors and twenty residents; a small settlement for the sisters and lady workers; Moulton House, so named after the late Rev. Dr. Moulton, Principal of the School, for thirty-five students and young men employed in business; accommodation for the medical mission and dispensary, choirs and band; and offices for the staff, missioners, &c.; a roof-garden will be constructed above each of the three blocks of the group, and the ground floor of the principal front will consist of eight shops and twenty-seven offices, to be let for ordinary business purposes. The estimated total expenditure upon the new buildings amounts to about 108,000*l.*, towards which a balance of some 30,000*l.* is still required.

AN UNUSUAL FOOTBRIDGE.—For spanning various gaps in the footpath cut along the face of Gobans' cliffs, Antrim, several footbridges have been built, and for connecting the mainland with the Man-of-War Rock, a tubular girder of elliptical section has lately been erected by the Belfast and Northern Counties Railway Co. The bridge is 70 ft. in length, and the clear span is 65 ft., the main structure consisting of twelve elliptical frames, of which the major and minor axes measure 7 ft. and 4 ft. 8 in. respectively. Two longitudinal bars along the top, and ten longitudinal angle-bars at intervals around the lower portion of the periphery, serve to connect the elliptical frames, and the structure is further strengthened by diagonal bracing. The flooring consists of two 12 in. by 3 in. pitch-pine planks laid across the frames, and further supported by angles. Sufficient headroom exists for any person of normal stature, and the longitudinal bars afford ample protection for passengers. Owing to the exposed character of the coast, the bridge was built at Belfast, being transferred bodily to a lighter and towed to the site, where it was successfully hoisted to its final position. Considerable care was requisite during the last-mentioned operation owing to the cramped space in which the hoisting tackle had to be worked, and for the purpose of preventing the bridge from receiving injury by swinging against the face of the rocks.

CEMENT NOTES.—According to a Russian official Report, the total output of the three cement factories at Novorossisk during the year 1902 was 193,584 tons, of which 32,258 tons were shipped to the far east and 1,000 tons to other ports abroad. ——Sir P. Sanderson, British Consul-General at New York, writes:—"There was at one time a considerable importation of cement to the United States from the United Kingdom, but there has been a rapid decline of late years, owing to a certain extent to manufacture on a large scale in this country. At the same time it may be remarked that Germany and Belgium have been able to retain their trade in this article, while that of the United Kingdom is practically extinct. In 1892 the imports of cement into the United States from these three countries were: The United Kingdom, 335,000*l.*; Germany, 310,000*l.*; Belgium, 123,000*l.* In 1902 the returns show: Germany, 340,000*l.*; Belgium, 145,000*l.*; The United Kingdom, 21,000*l.*"——A consular report states that during the past year the shipments from Boulogne of locally-produced cement were slack, the quantity sent to the United Kingdom being about one-sixteenth of the average of the previous five years.

GRAMMAR SCHOOL, HUNTINGDON.—The recently opened new school buildings were erected by Mr. M. J. Allen, of Brampton, after plans and designs by Mr. Ernest Borissow, Diocesan Surveyor, Ely, and Surveyor for the Borough of Huntingdon. The buildings, facing the barracks, are constructed of red brick with stone dressings—the stonework being by Mr. Baxter of that town. The school was originally established as part of the St. John's Hospital charity, founded *temp.* Henry II. by David, Earl of Huntingdon, afterwards King of Scotland. The old grammar school, which had been the chapel of the hospital, was remodelled and partly rebuilt forty years ago, under Robert Hutchinson's superintendence, at the charges of Dion Boucicault, as a memorial to his son. A description of the hospital buildings, in All Saints' parish, is given in a report, 1830, of the Charity Commissioners, who in 1894 made a scheme for the future conduct of the charity. About two hundred yards distant stood the home of Oliver Cromwell, who proceeded from the school to Sidney Sussex College, Cambridge.

ELECTRIC LIGHTING OF LIVERPOOL STREETS.—Two reports have been presented to the Electric Power and Lighting Committee in reference to the electric lighting of the whole of the tramway routes of the city and other main thoroughfares. The City Lighting Engineer states that "the total road mileage of tramway routes is 57½ miles, four miles of which are already electrically lighted. In dealing with these roads, it would be desirable from every point of view to utilise the tramway poles where they exist and are available. These are fixed at an average distance apart of 40 yds., which would necessitate approximately 2,054 lamps over the entire tramway routes. Trampoles do not exist over the whole of the tramway routes, and it is estimated that 508 electric columns would have to be provided. The following are the streets which the Engineer considers are principal thoroughfares, in addition to the tramway routes, viz., Great Homer-street, Fox-street, Old Hall-street, Boaler-street, Mill-street, Myrtle-street, Brownlow Hill, North John-street (part), South John-street, Hanover-street. The total length of these streets is about four miles, and it is assumed that the lamps in them might reasonably be placed at an average distance apart of 55 yards, which would necessitate approximately 145 lamps. On this assumption the approximate first cost and additional annual cost would be as follows, viz.:—Wiring and equipping lamps, switches, &c., on 1,546 trampoles, at 77*l.* each, 119,042*l.*; wiring and equipping lamps, switches, &c., on 653 electric lamp pillars, at 84*l.* 10s. each, 55,178*l.* 10s.—174,220*l.* 10s., credited by cost of 3,278 gas-lamp pillars, &c., discontinued at 1*l.* 5s. each, 4,097*l.* 10s.; total first cost, 170,123*l.* Annual cost of 2,199 lamps at 16*l.* 12s. each, 36,503*l.* 8s., credited by present cost of gas lighting, 8,856*l.* 5s. 1d.; total additional cost, 27,647*l.* 2s. 11d." The Resident Engineer states that if this scheme "were carried out in its entirety, it would be necessary to add, say, 2,000 horse-power to the generating plant in the stations, and to lay additional street mains in advance of the usual extensions for ordinary supply purposes. The Engineer estimates the capital expenditure necessary for the above plant and mains approximately at 50,000*l.*

CHURCH OF ST. MATTHEW, CITY-ROAD, E.C.—The vicar of the parish makes an appeal for contributions to a fund of 2,500*l.* for the re-instatement of the fabric of this church, which is in an untoward condition. The church was erected in 1847-8, after Sir G. Gilbert Scott's plans and designs, with a capacity of 800 sittings, for the poor and populous district lying between Islington and St. Luke's. The steeple forms a conspicuous object as seen from the main road. In 1866 G. E. Street made designs for the reredos, improved the sanctuary and chancel, and enlarged the porch. The stained glass in the east window, 1866, is by Michael O'Connor, that in the pair of lancet windows above the west door was designed by Clutterbuck. In 1869-9 Willis made additions to the organ, originally built about ten years previously by Gray & Davison.

A BANNER FOR THE CHURCH CONGRESS.—For the Church Congress to be held at Bristol in next October a diocesan banner is being worked after designs and cartoons prepared by Mr. G. F. Bodley. The central figure, having for groundwork a rich cream-coloured damask silk, represents Aldhelm, Abbot of Malmesbury, and, in A.D. 704-9, first Bishop of Sherborne, a diocese which originally extended over his kinsman Ina's kingdom of Wessex. The execution of that part of the design is entrusted to Messrs. Watts & Co., of Baker-street, London The ladies of the Bristol Guilds for Church Work will, under Mrs. Hollis's general supervision, embroider and paint the remaining portions of the banner, which will consist of the coat-arms of the See of Bristol, worked in gold upon black velvet, and at the four corners, upon a ground of blue silk, the painted coat-arms of Bristol, Malmesbury, Swindon, and Chippenham.

HOUSES IN THE FAROE ISLANDS.—From an exceptionally interesting Report made for official purposes by Mr. Consul Villiers on the social and commercial conditions of the Faroe Islands (which administratively are a part of Denmark, and not a colony like their northern neighbour, Iceland) it appears that a good deal of building timber is imported from the United Kingdom, Italy, and Scandinavia. The inhabitants live in houses built of wood on a stone foundation. Stone can be found in plenty, but must be blasted. No timber trees grow on the islands. The climate is damp and foggy, with frequent rain or snow according to the season, driven by wind. Most houses are tarred, though some are painted. All preventives of the penetration of damp should be saleable, to be used either in the stone foundation, on or between the planking of the wooden walls, or on the roof. Chimneys are built of imported bricks. The roofs of most houses are overlaid with birch bark, and on this are placed thick clods of turf. A few have recently been built with corrugated iron roofing. The low initial cost of construction is no doubt an inducement, but it is found, nevertheless, to be hot in summer, cold in winter, and very noisy in storm. Turf seems so far to answer the roofing requirements best; it becomes compact and remains efflorescent. Slate and tiles have been used, but the terrific storms are apt to displace them, resulting in leaks, the repair of which in winter is difficult, and would, besides, necessitate the keeping of a stock of slate ready for an emergency and the presence of some one able to replace them. Any one can put on a clod of turf. The difficulty of transport and travelling in winter must be constantly borne in mind. The windows are of small panes of glass of an inferior quality, locally cut from large sheets. With regard to furniture, the absence of trees, compelling the importation of material or ready-made pieces, is equally noteworthy. As the houses are very small, and yet contain proportionately many rooms, handy contrivances that occupy little space are in demand, especially for bedrooms. In each of the better houses one sitting-room is generally made comfortable with upholstered furniture *en suite*—a piano, looking-glass, &c. In the dining-room a sideboard with mirror, a solid table, and chairs are frequently found. Thick curtains and carpets are used in winter. It is worth considering (suggests Mr. Villiers) whether an electric light plant could not profitably be established at Thorshavn, and perhaps in some of the other towns, by means of water-power. During the winter months, at which time of year the streams are constantly in flood, rushing with considerable force from the hills, the days are very dark, and artificial light is needed almost continuously. The people habitually stay up very late. Petroleum lamps, many kinds of which seem extremely cheap, are in general use both in shops and houses, nor are they used sparingly. The nights are exceedingly dark, and the streets are provided also with petroleum lamps. This could all be replaced

advantageously, and perhaps profitably, by electricity. In the summer months—May, June, and July—when sometimes the streams would possibly fail to give sufficient power, no artificial light would be needed either day or night, as it is constantly daylight. Common petroleum is sold at from 2*l.* to 2*l.* 10*s.* the cask. The houses are heated by means of stoves; peat is often used for fuel, but it is not much cheaper than coal, for which there is a considerable demand. Until now all such coal has been imported, although the mineral has been found on at least two of the islands, and a certain amount of survey work with a view to mining continues to be done by a French company. Petroleum-oil stoves are now being introduced for heating.

USES OF REDWOOD.—Mr. Bennett, British Consul-General, writing from San Francisco last month, dwells on the new demand which, he says, has sprung up for redwood, a material which California alone can supply. It has been discovered by the chief engineer of the Niagara Falls Power Co., that, under certain conditions which rule in connexion with that enterprise, the hardest steel is inferior in resisting power to California redwood. The company accordingly sent an agent to San Francisco to obtain figures for furnishing several million feet of the local lumber, to be employed instead of steel in the construction of a great tunnel at the Falls this summer. The reason given for the preference for the California wood was that when water passed over it continuously there formed a surface of soapy and pasty nature which was proof against corrosion, whereas in the case of steel the particles of sand and matter carried with great velocity from the Niagara River cut into and destroyed the steel in an incredibly short space of time. The Redwood Association was asked if it could furnish 3,000,000 ft. of redwood for delivery in Buffalo in July next, and gave an affirmative reply. The redwood lumber to be supplied under this contract is to be 3 in. by 8 in., and to be set on the narrow end, the length to be from 12 ft. to 20 ft. Redwood has been found exceedingly useful in the construction of the big pipes used for the conveyance of water to many of the electric-power houses in the northern part of the State. These pipes are built up and banded. They cost less than metal pipes, are more durable, and are more easily carried around the sharp curves followed by these great water lines. It will outlive all other woods when constantly moist. While it is not non-combustible, which quality some enthusiasts have erroneously ascribed to it, it burns much more slowly than any other kind of timber used for building purposes, as it contains no inflammable oil or resin. While it is not desirable to be used as a fire wall, the resistance it offers to the inroads of fire has been the salvation of many dwellings constructed with it. The discarded stumps of redwood felled for the lumber many years since have come into favour for the manufacture of furniture and the interior decoration of buildings, the curled grain making beautiful figures, and the wood itself taking a fine polish. Just at present California redwood is in great demand in the Eastern States, partly because the forests in that section have become exhausted, but chiefly because of the variety of uses to which it can be profitably put.

APPOINTMENT.—At a meeting of the sub-committee of the Northumberland County Council Education Committee, the appointment was made of Mr. J. Wightman Douglas, architect, of Alnwick and Newcastle, as architect and valuer of the various schools to be taken over by that authority under the new Education Act.

CAPITAL AND LABOUR.

BRADFORD BUILDING TRADE.—At present there seems little prospect of the matters in dispute between the Bradford operative masons and their employers being adjusted peaceably. It will be remembered that in January the men gave in their notices failing an alteration of the rule affecting the employment side by side of society and non-society workmen. As it now stands, the rule says that no strike or lock-out shall be permitted where the dispute rests solely on this question, and what the men desire is to regain their former freedom of action, and to be able to decline to work with non-unionists. The Conciliation Board appointed at the conclusion of the last dispute, and consisting of six representatives of each side, with Mr. W. C. Lupton as chairman, has held numerous meetings, whereat unsuccessful attempts have been made to come to an agreement. It was alleged by the men that some of the masters, taking advantage of the rule, had given preference to non-unionists. This the masters strongly denied, and submitted to have any specific cases that could be brought fully investigated by the Board. It was also alleged that one or two of the masters were employing more apprentices than the rules allowed, but upon this charge being looked into by a representative of the masters and a representative of the men, both agreed that it was without foundation. The notices expire on July 31, when a strike seems inevitable, as neither side shows any signs of giving way.—*Yorkshire Observer.*

SOUTHPORT PLUMBERS.—At a recent meeting of the Southport Trades and Labour Council, Mr. H. Aughton, of the Plumbers' Association, drew attention to a grievance. He stated that the Corporation employed men to put in gas fittings at 6*d.* an hour, and that the Birkdale Council paid either 5½*d.* or 6*d.* for plumbing work. This threw practical men out of a job, for it meant that only labourers' wages were paid. Of the Corporation sanitary inspectors, three had been either a gardener, a fishmonger, or a joiner. Plumbers thus had men domineering over them who did not understand their work, and sometimes in connexion with their trade they were compelled to do things which they knew were wrong. He expressed the opinion that if the Corporation paid the standard rate of wages the plumbers would have nothing to say. Mr. Proudfoot, J.P., said it was a terrible example for a Corporation to set men to work at one of the most skilful of trades at sweating wages. It was agreed to form a sub-committee to meet the Plumbers' Association on the matter with a view of approaching the Council.—*Lancashire Post.*

ST. HELENS JOINERS.—The recent trouble between the joiners of St. Helens and district and the Master Builders' Association on the question of rules has been followed by a notice which has been given by the employers for a reduction of wages, and some alteration in the rules under which the St. Helens joiners are employed. The joiners are at present receiving 9*d.* per hour, but the masters desire a reduction to 8½*d.* The men have replied to the notice by giving a counter notice asking for an increase to 9½*d.*

CARDIFF PAINTERS' STRIKE.—This dispute has been settled by mutual agreement upon the rules which are in future to be observed by the Amalgamated Society of House Decorators and Painters. The chief concession to the men is an increase of one halfpenny per hour.

LEGAL.

BERMONDSEY BOROUGH COUNCIL AND SURREY COMMERCIAL DOCK CO.

AT Southwark Police-court on Friday last week, the Secretary of the Surrey Commercial Docks Co. was summoned by the Bermondsey Borough Council for failing to give, under Section 76 of the Metropolis Management Act, 1855, seven days' notice of their intention to erect a new building in Furland-yard, Redriff-road, Rotherhithe. Mr. Ryall, the Town Clerk, appeared for the Borough Council, and Mr. Glen, barrister, defended. Mr. Glen contended that the Dock Co. were exempted from the Section in this case. This work was being done under the powers conferred upon them by the Surrey Commercial Dock Act, 1894, which empowered them to make new docks, new roads, and to make and maintain any buildings they might require. Mr. Ryall: I do not dispute your right to construct a new building, but I say you must give us notice under Section 76. Mr. Glen said that unless they were by their special act exempted from Section 76, the Borough Council would have power to control their buildings, and would possess the very powers which the special Act conferred upon the Dock Co. The new building (a workshop) in question would be within the dock gates, and he contended that according to the decisions in "The City and South London Railway Co. *v.* London County Council," and "The London County Council *v.* The School Board for London, 1892," a special Act with regard to any area over-rided and repealed any general Act. For fifty years the company had been in possession of the docks, and had never been required before to give any such notice. Since the Borough Council had been in existence, they had erected buildings without being called upon to give a notice under Section 76. Mr. Ryall: This is the first time that we have known of any change. The case was adjourned.

STOVES AT PIANO WORKS.

AT the North London Police-court recently H. G. Kent was summoned by Mr. Josiah Goodchild, the District Surveyor for Islington (North), for fixing a stove to be used for heating glue at his piano factory without having given notice to the District Surveyor as required by Section 145.

Mr. Mead imposed a fine of 10*s.* with 12*s.* 6*d.* costs.

FATAL ACCIDENT IN ISLINGTON.

THE Deputy-Coroner, Dr. F. Thomas, recently held an inquest at the City Mortuary, Golden-lane, on Walter Edward Brooks, aged twenty-four, a carman, of Swanley-street, Islington.

On the evening of Sunday, May 31, a large piece of the cornice of No. 339, High-street, Islington, fell, killing Brooks and injuring others. After the evidence of the widow and other persons, Mr. Henry Lovegrove, District Surveyor, stated that he had carefully examined the cornice and, finding the remaining portion quite sound, was of opinion that it was possible that during the storm in the morning the upper member had been split, as there was no evidence of the crumbling in parts usually found in defective cement. He thought that cement cornices of that size should have a stone core.

Dr. L. Ferncombe, of St. Bartholomew's Hospital, stated that deceased died before he arrived at the hospital from an extensive fracture of the skull.

Verdict, "Accidental death."

PATENTS OF THE WEEK:

APPLICATIONS PUBLISHED.*

13,179 of 1902.—T. ROGERS: *Construction of Cooking Range.*

A fireplace in which the bars are readily detachable by being constructed with vertical side members, the feet of which fit into recesses formed in the sides and front of the fireplace, the upper ends of the vertical members being retained by pivoted buttons.

14,033 of 1902.—M. C. J. G. GIESSMANN; *Smoke Consumers for Domestic Fireplaces.*

A smoke-consuming device for fireplaces, consisting of a shell forming an air space at the back of the fire, and a trough leading from said space rearwards towards the flue.

15,694 of 1902.—O. RÉVAL: *Boilers for Heating Water for Baths, for Drying, and for Like Purposes.*

A combined horizontal bath or like stove and room heating apparatus, in which the furnace and combustion-chamber are entirely enclosed within the boiler, characterised therein, that the flue-pipe projecting through the boiler shell returns into the boiler after one or more exterior convolutions and then passes to the chimney, the exterior part of the flue-pipe being fitted with a valve and bye-pass immediately below the boiler.

18,371 of 1902.—G. MOORE: *Baths.*

Relates to baths and consists in the provision of ledges, pockets, or recesses in the bath, as rests, supports, or like purposes.

27,004 of 1902.—C. HOSKINS: *Fastenings for Windows.*

A drop latch constructed to fasten on upper sash of window, and arranged to allow the window to be left partially open for ventilation, the latch being protected so as to prevent further opening of the window from the outside, while by lifting the latch from the inside the window may be freely opened.

14,375 of 1902.—J. W. B. WRIGHT and H. DARWIN *Gas-heating Stoves.*

In gas-heating stoves, a detachable firebrick back, and box or frame therefor, arranged to enter and engage with the flue slot or combined so as to be suspended thereby.

14,358 of 1902.—J. W. B. WRIGHT and H. DARWIN: *Gas Cooking Ranges.*

In a gas cooking range, the combination with an open gas fire of an oven formed with external flues in communication with the flue or outlet of said gas fire, a water boiler or heater, a flue surrounding said water boiler and communicating with the fire flue and oven flue, and means for regulating the passage of the heat to said flues.

5,152 of 1903.—J. V. OOSTRWIJCK: *Chimney-tops.*

A chimney-top comprising a polygonal frame, closed at the top and provided at the sides with a number of openings, hinged cover plates for said openings, each pair of opposite plates simultaneously covering their respective openings.

5,577 of 1903.—R. KRUBETKE: *Means for Securing Casements and Similar Windows.*

A device for securing casements and similar windows in open positions, comprising a plate pivoted in the casing attached to the casement or to the latter itself, and provided with a suitable number of holes in a row, each of which holes is adapted to engage a pin adapted to slide in a slot in said casing or along the bottom of the casement, and fixed to the end of a bar, the other end of which is pivotally connected to the fixed window frame or the like.

7,011 of 1903.—J. D. MILLER: *Sash Locks.*

This consists in the combination with the lock of a casing, of plurality of interfitting sections, the face or bolt guiding plate being formed of two members integral with the respective sections, the inner for engagement with the rear of said face plate forming the bolt of the opposite section, and means for securing the two sections of the casing to each other, a bolt guided within the casing, and means for operating said bolt.

7,463 of 1903.—J. BARDSLEY: *Door Closers and Checks.*

In a door closer, an operating lever arm, and a spindle to which said lever arm is connected, combined with a double-acting coil wire spring encompassing but free of said spindle, and means intermediate said lever arm and the upper and lower ends of said spring, and free of said spindle, for winding said spring at its respective ends from said lever arm in accordance with its direction of motion.

3,263 of 1903.—EWART & SON, LTD., G. EWART, AND F. J. D. HÜLLINGHURST: *Ventilators.*

This invention consists of a ventilator so constructed as to be entirely free from any moving parts, and made up either of sheet metal or of castings. The main feature of the invention comprises the double arrangement of fixed fans or

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

blades, which fans or blades are so shaped that wind blowing against the same cannot pass between them and so down the main pipe, but will on the contrary induce or create an up-draught in the main pipe of the ventilator.

11,377 of 1902.—L. M. WATERHOUSE and THE SIMPLEX STEEL CONDUIT CO., LTD.: *Fittings for Metallic Conduit Systems of Electric Wiring.*

A device for metallic conduits which consists of a box having the necessary inlets and outlets, and provided with a circular opening into which a self-retaining lid is adapted to fit, the self-retaining lid having a central opening from which the projecting portion of the fitting passes, so that the lid and fitting are thus fixedly attached.

12,308 of 1902.—H. KNOBEL and G. SEQUIN-BRONNER: *Construction of Roofs.*

In the construction of roofs, a horizontal disposition of the framework which carries the roofing and a division of the roof into a plurality of collecting basins, from the deepest points of which the rainwater is carried off.

12,944 of 1902.—W. G. HOLLINGWORTH and W. CLOWES: *Steam-heating System.*

In a vacuum-heating system withdrawing the air from the return or exhaust of the radiators or the like and leading said air to the condenser or equivalent apparatus.

13,664 of 1902.—H. C. ROSTOCK: *Manufacture of Asphalt Composition.*

The process for the manufacture of asphalt composition, consisting in the addition of from about 15 per cent. to 20 per cent., or at the outside 25 per cent., of iron or steel filings to an asphalt mass containing asphalt oil, preferably Orinoco asphalt oil.

15,540 of 1902.—THE FIREPROOF PLATE WALL CO., LTD., and SIDEBOTHAM: *Means for the Protection from Fire of Structural Ironwork employed in the Erection of Buildings.*

A casing for structural ironwork, such as girders beams, stanchions, and columns constructed of slabs plates of plaster, cement, concrete, or similar material, with an air space surrounding the iron.

4,347 of 1903.—J. J. TITUS and W. TITUS: *Means for Heating, Cooling, and Ventilating Buildings.*

The combination with a multiple-storied building of an air-forcing apparatus and air-heating apparatus, and air shaft extending from the heating apparatus to the several stories, an air-cooling apparatus, an air shaft extending from the cooling apparatus to the several stories, and means for directing at will the air from the forcing apparatus to either or both of the said shafts, means for mixing the heated and the cooled air at said shafts to temper the air to a desired temperature, and means for regulating the admission of the tempered air to the several stories

5,723 of 1903.—J. O'BRIEN: *Hot-water Heating System and Valves Therefor.*

In heating apparatus on the "Perkins" system, the formation of by-passes or branches by fitting a three-way valve at the junction of each branch or by-pass, to permit the possibility of regulating at will the heat in each apartment.

6,852 of 1903.—W. BRUECKNER: *Hot-water Heating System.*

Hot-water heating system characterised in that the return pipe (or return pipes) is first led in an upward direction to slightly below an expansion cistern, and then descends from there for the purpose of connexion to the hot-water boiler.

4,169 of 1903.—R. HADDAN (WELSENAAR, ROMEYN, & VERKERK): *Tiled Roofs.*

This consists in the inter-connexion of the cover parts running from the ridge to the gutter, and in the fastening of the tiles themselves to the supports or underlays by means of suitable noses engaging over the tiles so that the lifting of the latter by the wind is prevented.

MEETINGS.

FRIDAY, JUNE 12.

South-Eastern Union of Scientific Societies (annual congress continued).—Morning, afternoon, and evening meetings. Paper by the Rev. R. Ashington Bullen on "A Late Keltic Cemetery at Harlyn Bay."

SATURDAY, JUNE 13.

Architectural Association.—First summer visit, to Heathfield Park, Sussex. Train leaves Victoria Station at 11.15 a.m.

Building Trades' Exhibition, Royal Agricultural Hall.—Opening of the Exhibition. 1.30 p.m.

St. Paul's Ecclesiological Society.—Visit to the Church of Kemsing. Train to Otford from Holborn at 1.15 p.m.

Incorporated Association of Municipal and County Engineers.—Eastern District meeting, Sudbury.

Edinburgh Architectural Association.—Annual excursion to Bamborough.

South-Eastern Union of Scientific Societies (annual congress, Dover, concluded).—Mr. A. T. Walmisley, Engineer, Dover Harbour Board, on "International Communication." 12 noon.

TUESDAY, JUNE 16.

Institution of Civil Engineers (Engineering Conference).—Mr. W. H. Maw will deliver the 11th "James Forrest" lecture on "Some Unsolved Problems in Engineering" in the Theatre of the Institution. 9 p.m.

WEDNESDAY, JUNE 17.

Institution of Civil Engineers (Engineering Conference).—The President, Mr. J. C. Hawkshaw, M.A., will inaugurate the conference with a short address to all the sections, in the meeting room of the Institution of Mechanical Engineers. 10 a.m. After which the various sections meet at the Surveyors' Institution, the Guildhall, Westminster, and the Institution of Mechanical Engineers.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting of the members. 8 p.m.

London Master Builders' Association.—Finance Committee. 3 p.m

THURSDAY, JUNE 18.

Institution of Civil Engineers.—Engineering Conference, continued.

Surveyors' Institution.—Conversazione, Natural History Museum, South Kensington. 9 to 12 p.m.

London Master Builders' Association.—Council Meeting. 4 p.m.

FRIDAY, JUNE 19.

Institution of Civil Engineers.—Engineering Conference, concluded.

SATURDAY, JUNE 20.

Architectural Association.—Visit to the Building Trades' Exhibition.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

May 3.—By EDMUND HORNE (at Southall).

Southall, Middx.—Western-rd., Bell's Charity Land (building site), 9 a. 3 r. 32 p., f. £3,400

May 20.—By THOMPSON & RATCLIFFE (at Manchester).

Manchester.—Peter-st., the Comedy Theatre, area 1,168 yds., f., subject to chief rents of 420*l.* 14*s.* 25,000

May 22.—By GEO. WILCOCK (at Wigan).

Upholland, Lancs.—Bowyer's Farm, 92 a. 3 r. 36 p., f. (including mines and minerals) 7,800

May 23.—By NICHOLAS, DENYER, & CO. (at Worcester).

Shelsley Kings, &c., Worcester.—A freehold holding, 11 a. 1 r. 31 p. 540
A freehold orchard, 1 a. 2 r. 29 p. 200
A freehold holding, 3 a. 3 r. 10 p. 90

May 26.—By W. BROWN & CO. (at Leighton Buzzard).

Cublington, Bucks.—Neale's Charity Farm, 103 a. 3 r. 3 p., f., y.r. 143*l.* 3,000

May 27.—By LEEDHAM & HARRISON (at Breaston).

Breaston, Derby.—The School Farm, 119 a. 3 r. 25 p., f. (in lots) 6,855

By MADDISON, MILES, & MADDISON (at Yarmouth).

Bradwell, Suffolk.—Mill Seven Acres, 6 a. 3 r. 14 p., f. 350
A freehold cottage, w.r. 13*l.* 170
A freehold holding 2 a. 1 r. 22 p. 170

Burgh Castle, Suffolk.—Enclosure of land, 4 a. 1 r. 27 p., f. 180
Market garden land, 6 a. 1 r. 23 p., f. 240
Yarmouth, Norfolk.—52 and 53, Middlegate-st., f., y.r. 22*l.* 7*s.* 4*d.* 258

May 29.—By TILLEY & PARRY (at Chippenham).

Yatton Keynell, Wilts.—The Manor Farm, 204 a. 1 r. 8 p., f. 6,250

By COBBS (at Sittingbourne).

Sittingbourne, Kent.—High-st., i.g.r. 7*l.*, u.t. 52 yrs., g.r. nil 140
126, High-st. (S.), u.t. 52 yrs., g.r. 8*l.*, y.r. 33*l.* 500
4 to 16 (even), Station-st., u.t. 52 yrs., g.r. nil, w.r. 70*l.* 4*s.* 800
Newington, Kent.—Bull Orchard, 1 a. 2 r. 25 p., f., y.r. 35*l.* 510
Three freehold cottages and oasthouse, p. 500
Dennes Downs Orchard, 6 a. 0 r. 6 p., f., y.r. 32*l.* 820
Bobbing, Kent.—Three freehold cottages, w.r. 37*l.* 14*s.* 590

By E. HOLSWORTH.

Holloway.—24, Hargrave-rd., u.t. 60 yrs., g.r. 5*l.* 10*s.*, y.r. 32*l.* 300

By E. W. RICHARDSON.

City of London.—Basinghall-st., site of St. Michael Bassishaw Church, area 5,000 ft., building lease for 80 yrs., let at per annum ... 1,280

By A. H. TURNER & CO.

Dummer, Hants.—Dummer Down and Tower Hill estates, 588 a. 2 r. 19 p., f. 5 000
Ash, Surrey.—Oakleigh and 4½ a., f., p. 3,000
Pirbright, Surrey.—The cottage and 4 a., f. 3,000

June 2.—By LEONARD CAVEY & CO.

Forest Hill.—16, Kilmorie-rd., u.t. 80 yrs., g.r. 5*l.* 10*s.*, e.r. 34*l.* 310
80 and 82, Stanstedd-rd., u.t. 53½ yrs., g.r. 6*l.* 17*s.*, w.r. 57*l.* 4*s.* 305

June 3.—By HILLIER & PARKER.

Whitechapel.—27, Whitechapel-rd. (S.), f., e.r. 200*l.* 3,750

By EDWARD WOOD.

Clapham.—99, Honeybrook-rd., u.t. 94 yrs., g.r. 7*l.*, y.r. 40*l.* 480
Balham.—41, Gaskarth-rd., u.t. 88 yrs., g.r. 5*l.* 15*s.*, e.r. 36*l.* 305
Brixton.—14 and 16, St. James-rd., u.t. 15½ yrs., g.r. 12*l.* 12*s.*, y.r. 84*l.* 400
Wealdstone, Middlesex.—Canning-rd., Rixton Villa, f., e.r. 32*l.* 360
Muswell Hill.—Alexandra Park-rd., Brantwood, u.t. 95 yrs., g.r. 10*l.* 10*s.*, e.r. 60*l.* 520
Wood Green.—17 and 18, Cranbourne-ter., u.t. 97 yrs., g.r. 8*l.* 8*s.* e.r. 60*l.* 8*s.* 320

Notting Hill.—1, Heathfield-st., f., w.r. 18*l.* 4*s.* .. £200
Holloway.—72, Pooles Pk., u.t. 62 yrs., g.r. 3*l.*, y.r. 27*l.* 230

By T. WOODS (at Hounslow).

Hounslow, Middlesex.—Tivoli Cottages, f.g.r. 43*l.* 10*s.*, reversion in 79 yrs. 870
Gloucester-rd., f.g.r. 60*l.*, reversion in 89 yrs... 1,380
Clarence-ter., f.g.r. 62*l.* 10*s.*, reversion in 93 yrs. 1,300
Isleworth, Middx.—1 and 2, Devonshire Villas, f., y.r. 52*l.* 700
1 to 4, Gumley-row, c., y.r. 95*l.* 1,550
Twickenham, Middx.—Church-st., freehold house, formerly the Carpenter's Arms p.-h., e.r. 30*l.* 240

June 4.—By S. H. DAVIES & CO.

Soho.—18, Noel-st., f., e.r. 100*l.* 1,700
Chelsea.—49, Cadogan-st., u.t. 40 yrs., g.r. 8*l.*, y.r. 80*l.* 830
Clapham.—10, Crescent-gr., u.t. 62½ yrs., g.r. 12., y.r. 60*l.* 510

By NEWSON, EDWARDS, & SHEPHARD.

Pentonville.—25, Claremont-sq., u.t. 9 yrs., g.r. 10*l.*, y.r. 60*l.* 163
Canonbury.—22, St. Mary's-rd., u.t. 42 yrs., g.r. 5*l.*, e.r. 70*l.* 560
Caledonian-rd.—98, Blundell-st., u.t. 48½ yrs., g.r. 5*l.*, y.r. 30*l.* 265

By STIMSON & SONS.

Camberwell.—D'Eynsford-rd., f.g. rents, 47*l.* 6*s.*, reversion in 50 and 53 yrs. 1,400
D'Eynsford-rd., f.g.r. 13*l.*, reversion in 50 yrs. 420
Denmark-rd., &c., f.g. rents 72*l.*, reversion in 58 yrs. 1,900
Hackney.—12, 14, and 16, Chatham-pl., with workshops, yard, &c., in rear, f., y.r. 111*l.* .. 2,090
Regent's Park.—19, 19a, and 21, Longford-st., f., y.r. 77*l.* 8*s.* 1,020
South Lambeth.—Meadow-pl., f.g.r. 15*l.*, reversion in 64 yrs. 385
Clapham.—Richmond-ter., i.g.r. 30*l.*, u.t. 25 yrs., g.r. 4*l.* 340
5, Carroun-rd., and 57 and 59, Meadow-rd., u.t. 35 yrs., g.r. 12*l.* w.r. 103*l.* 630
South Lambeth.—54, Lansdowne-rd., u.t. 57 yrs., g.r. 6*l.*, e.r. 44*l.* 400
Brixton.—56, Treherne-rd., u.t. 60 yrs., g.r. 5*l.* 5*s.*, w.r. 42*l.* 18*s.* 335
Norwood.—77 and 79, Rommany-rd., f., w.r. 65*l.* 570
Peckham.—107 and 109, Hill-st., u.t. 63 yrs., g.r. 8*l.*, y.r. 63*l.* 2*s.* 595
Enfield.—Bell-rd., f.g.r's. 60*l.*, reversion in 97 yrs. 1,405
Peckham.—38 and 44, Forest Hill-rd., f., y.r. 103*l.* 10*s.* 1,160
Herne-gr., a plot of building land, f. 420
Canning Town.—130, 132, 138 to 160 (even), Hermit-rd., u.t. 72½ yrs., g.r. 45*l.* 10*s.* 1,055
Godalming, Surrey.—7 and 8, Bridge-st. (S), f., y.r. 50*l.* 600

June 5.—By J. H. BULMER.

Rotherhithe.—51, Elgar-st., f., e.r. 28*l.* 12*s.* 210
Bermondsey.—3 to 6, Reed-st., u.t. 47 yrs., g.r. 19*l.*, w.r. 104*l.* 600
Stratford.—68, Idmiston-rd., f., w.r. 31*l.* 4*s.* 265

By W. B. HALLETT.

New Eltham, Kent.—Blanmerle-rd., four plots of land, f., ... 280
Blackfriars.—36 and 36½, Broadwall, c., y.r. 52*l.* .. 660

By NICHOLAS, DENYER, & CO.

Ropley, Hants.—Main-st., a freehold holding, 6 a. 2 r. 6 p. 210

By SLEE, SON, & CARDEN.

Bermondsey.—509 and 510, South-Eastern Railway Arches, goodwill-in-trade of a wine merchant's business, q.r. 25*l.* 200
Clerkenwell.—22, Aylesbury-st., beneficial lease for 7½ yrs., y.r. 50*l.*, with goodwill-in-trade .. 250

By JOSEPH STOWER.

Little Laver, &c., Essex.—Hull Green Farm. 201 a. 3 r. 24 p., f., y.r. 115*l.* 2,220
High Laver, &c., Essex.—Waterman's End Farm, 86 a. 1 r. 25 p., f., y.r. 66*l.* 1,680
Thorpe Morieux, Suffolk.—The Manor Farm, 208 a. 2 r. 27 p., f. 3,000
Mount and Watermere River Farms, 134 a. 1 r. 16 p., f. 2,170

By TRIST & CO.

Barnsbury.—Crossley-st., f.g.r. 22*l.* 12.; reversion in 78 yrs. 500
Norwood.—363 to 373 (odd), Holmesdale-rd., f., e.r. 263*l.* 2,670

By NORRIS, SON, & HADLEY.

Clapham.—136 and 138, Manor-st., f., y.r. 56*l.* .. 780
140, 146, 148, and 150, Manor-st. (S), f., y.r. 195*l.* 3,370
Holloway.—Crayford-rd., i.g.r.'s 18*l.* 10*s.*, u.t. 49 yrs., g.r. 1*l.* 310
Camberwell.—George-st., f.g.r. 75*l.*, reversion in 50 yrs. 1,900
Hackney.—Lauriston-rd., f.g.r.'s 40*l.*, reversion in 39 yrs. 1,010
Holloway.—Enkel-st., f.g.r. 23*l.* 9*s.*, reversion in 57 yrs. 585
Mayton-st., f.g.r. 26*l.* 5*s.*, reversion in 57 yrs. .. 670
Grove-rd., f.g.r.'s 69*l.* 6*s.*, reversion in 60 yrs.. 1,725
Finsbury Park.—Rock-st., f.g.r. 6*l.*, reversion in 68 yrs. 130
Ealing.—Denmark-rd., f.g.r.'s 23*l.*, reversion in 76, 74, and 58 yrs. 585
Clapham.—Wirtemberg-st., f.g.r.'s 40*l.*, reversion in 52 yrs. 1,120
Wirtemberg-st., f.g.r.'s 42*l.*, reversion in 25 yrs. 1,730
Wirtemberg-st., f.g.r.'s 11*l.* 17*s.*, reversion in 5 yrs. 1,050
High-st., f.g.r. 79*l.* 10*s.*, reversion in 12 yrs..... 4,000
High-st., f.g.r. 20*l.*, reversion in 55 yrs. 660
High-st., f.g.r. 180*l.*, reversion in 49 yrs. 5,910
Little Manor-st., f.g.r.'s 25*l.*, reversion in 96 yrs. 615
Sutton, Surrey.—Linden Villas, f.g.r.'s 25*l.*, reversion in 54 yrs. 630

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
Sinking Wells, Crossgar, Ireland	Downpatrick R.D.C.	R. L. Morrow, Council Offices, Downpatrick	June 13
Surveyor's Materials, &c.	Chelmsford Corporation	Borough Surveyor, 16, London-road, Chelmsford	June 15
Drainage Works	Lossiemouth Town Council	G. Gordon & Co., Civil Engineer, Inverness	do.
Sewage Works, Melton Constable, Norfolk	Walsingham R.D.C.	T. T. Goldie, Engineer, Bank Buildings, Norwich	June 16
Bridge Works, Hever	Sevenoaks R.D.C.	W. H. Bolt, Surveyor, Leigh, Tonbridge	do.
Schools	Ipswich School Board	T. W. Cotman, Architect, Ipswich	do.
*Wood Paving	Willesden District Council	Council's Engineer, Public Offices, Dyne-road, Kilburn, N.W.	do.
*Road Making and Paving	do.	do.	do.
Sewerage Works	Consett (Durham) U.D.C.	R. Robinson, Civil Engineer, Darlington	June 17
*Erection of Seventy Houses, near the Rhyd, Tredegar	United Building Society	W. S. Williams, Architect, Tredegar	June 18
Sewerage Works, Monaghan	Asylum Committee	J. F. Peddle, Civil Engineer, Belfast	do.
Coal Hopper, &c.	Swansea Harbour Trustees	A. O. Schenk, Civil Engineer, Harbour Offices, Swansea	do.
*New Laundry, &c., at Smallburgh Workhouse	Smallburgh Union	F. Davies, Solicitor, North Walsham	June 20
*Small Mission Church, New Malden	.....	V. Davison, Architect, New Malden	June 22
*Block Flooring and Sound Proofing Boys' School	Pwllheli School Board	J. T. Howells, Solicitor, Pwllheli	do.
Sewers, &c.	Belper Town Council	C. J. Lomax, Civil Engineer, 37, Cross-street, Manchester	do.
Retort House, Norwich	British Gas Light Co.	T. Glover, Engineer, Bishop Bridge, Norwich	do.
Cast-iron Pipes	Mountain Ash U.D.C.	H. P. Louton, Town Hall, Mountain Ash	June 23
*Supply of Road Materials	Tankerton Estate, Ltd., Whitstable	A. A. Kemp, Surveyor, Tankerton Estate Office, Whitstable	do.
*Pumping Station, Chimney Shaft, &c., Falmer	Brighton Borough Council	Town Clerk, Town Hall, Brighton	do.
*Erection of University College, Sheffield	The Committee	Gibbs & Flockton, Architects, 15, St. James's-row, Sheffield	do.
*New Sorting Office at Upper Edmonton	H.M. Works	H.M. Office of Works, Storey's Gate, London, S.W.	do.
*Corrugated Iron Tram Car Shed	County Borough of West Ham	Borough Engineer, Town Hall, West Ham, E.	do.
*New Floor Surface Drainage, &c.	Clerk of London Union	Clerk to the Guardians, 61, Bartholomew-close, E.C.	do.
Iron Fire Escape Staircases, Renfrew-rd. Workhouse	Lambeth Guardians	S. R. J. Smith, Architect, 15, York Buildings, Adelphi, W.C.	June 24
*Painting Repairs, &c., at Workhouse	Holborn Union	A. Saxon Snell, 22, Southampton-buildings, Chancery-lane, W.C.	do.
*Stabling & Cart Sheds at Central Depot, Longfield-av.	Ealing Town Council	Council's Engineer, Town Hall, Ealing, W.	June 25
*High Pressure Rising Main, &c.	Goring, &c., Dist. Gas & Water Co.	G. H. Robus, Mansion House Chambers, E.C.	June 26
*Quarter Sessions and Police Court Buildings, &c.	County Borough of Sunderland	W. & T. R. Milburn, Architects, 25, Fawcett-street, Sunderland	June 29
*Cottage Dwellings, Croydon	London County Council	Architects Department, 19, Charing Cross-road, W.C.	June 30
Additions to Chapel, Pembroke Dock	.....	G. Morgan & Sons, Architects, Carmarthen	do.
Water Supply Works	Darley Dale (Derbyshire) U.D.C.	G. & F. W. Hodson, Engineers, Loughborough	do.
*Sewers Works	Watford U.D.C.	Offices of the Council, 14, High-street, Watford	July 1
*Furnishing of Schools at Parkeston	Ramsey School Board	J. W. Start, Architect, Colchester	do.
*New Orphanage	St. Pancras Female Orphanage, &c.	S. G. Goss, Architect, 3, Broad-street-buildings, E.C.	July 4
*Retaining Wall and Railings at Recreation Ground	Paddington Borough Council	Borough Surveyor, Town Hall, Paddington	July 6
*Drainage Works	Steyning West R.D.C.	Not stated	No date.
Farm House, Coedr, Cglwysugrw, Wales	.....	W. D. Davies, Bryn Berian, Wales	do.
Additions to Premises, Netherfield	.....	R. Whitbread, Architect, Carlton	do.
Well Sinking, Chelleston, near Derby	.....	W. Crane, Forest-road, Nottingham	do.
Sewerage Works, Bridge-street, &c., Long Eaton	.....	R. R. Ridgway, Surveyor, Long Eaton	do.
Surveyor's Materials	Keighley Corporation	W. H. Hopkinson, Keighley	do.
*Household Management Centre at Alexandra School	Watford School Board	W. H. Syme, Architect, 4, High-street, Watford	do.
*Painting, &c. Works, Lincoln, Pontefract and Scarboro'	War Department	R.E. Office, Fishergate, York	do.
*Restoration of St. James's Church, Grayne	Restoration Committee	Arnold Baker & Day, The Precincts, Rochester	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	York Electric Lighting Committee	3l. 10s. per week	June 19
*Working Foreman	Rochester Corporation	2l. 2s. per week	June 22
*Builders' Engineers	Metropolitan Asylums' Board	Office of the Board, Embankment, E.C.	do.
*Draughtsman	C.E., H.M. Dockyard, Pembroke	Not stated	No date.

Those marked with an asterisk (*) are advertised in this Number. *Contracts*, Iv. vi. viii. x. & xxiv. *Public Appointments*, xxi.

PRICES CURRENT OF MATERIALS.

**** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.		
Hard Stocks	1 15 0	per 1,000 alongside, in river.	
Rough Stocks and Grizzles	1 12 0	,,	,,
Facing Stocks	2 12 0	,,	,,
Shippers	2 5 0	,,	,,
Flettons	1 7 6	,,	at railway depôt
Red Wire Cuts	1 12 0	,,	,,
Best Fareham Red	3 12 0	,,	,,
Best Red Pressed Ruabon Facing	5 0 0	,,	,,
Best Blue Pressed Staffordshire	4 5 0	,,	,,
Do. Bullnose	4 11 0	,,	,,
Best Stourbridge Fire Bricks	4 8 0	,,	,,
GLAZED BRICKS.			
Best White and Ivory Glazed Stretchers	13 0 0	,,	,,
Headers	12 0 0	,,	,,
Quoins, Bullnose, and Flats	17 0 0	,,	,,
Double Stretchers	19 0 0	,,	,,
Double Headers	16 0 0	,,	,,
One Side and two Ends	19 0 0	,,	,,
Two Sides and one End	20 0 0	,,	,,
Splays, Chamfered, Squints	20 0 0	,,	,,
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	,,	,,
Quoins, Bullnose, and Flats	14 0 0	,,	,,
Double Stretchers	15 0 0	,,	,,
Double Headers	14 0 0	,,	,,

PRICES CURRENT (*Continued*).

BRICKS, &c.

	£ s. d.		
One Side and two Ends	15 0 0	per 1,000 at railway depot.	
Two Sides and one End	15 0 0	,,	,,
Splays Chamfered, Squints	14 0 0	,,	,,
Second Quality White and Dipped Salt Glazed	2 0 0	,,	less than best.
Thames and Pit Sand	6	9 per yard, delivered.	
Thames Ballast	6 0	,,	,,
Best Portland Cement	30 0	per ton, delivered.	
Best Ground Blue Lias Lime	20 6	,,	,,
NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.			
Grey Stone Lime	10s 6d.	per yard, delivered.	
Stourbridge Fire-clay in sacks 27s. 6d. per ton at rly. dpt.			

STONE.

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld rly. depôt.
Bath ,,	1 7	,, ,,
Farleigh Down Bath	1 8	,, ,,
Beer in blocks	1 6	,, ,,
Grinshill ,,	1 10	,, ,,
Brown Portland in blocks	2 2	,, ,,
Darley Dale in blocks	2 4	,, ,,
Red Corsehill ,,	2 5	,, ,,
Closeburn Red Freestone	2 0	,, ,,
Red Mansfield ,,	2 4	,, ,,
YORK STONE—*Robin Hood Quality.*		
Scappled random blocks	2 10	per ft. cube, deld. rly. depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super. ,,
6 in. Rubbed two sides Ditto, Ditto	2 6	,, ,,
3 in. Sawn two sides slabs (random sizes)	0 11½	,, ,,

PRICES CURRENT (*Continued*).

STONE.

	s. d.		
2 in. to 2½ in. Sawn one side slabs (random sizes)	0 7½	per ft. super dld. rly. depot.	
1¼ in. to 2 in. ditto, ditto	0 6	,,	,,
BEST HARD YORK—			
Scappled random blocks	3 0	per ft. cube	,,
6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2 3	per ft. super.	,,
6 in. Rubbed two sides Ditto	—	,,	,,
3 in. sawn two sides slabs (random sizes)	1 2	,,	,,
2 in. self-faced random flags	0 5	,,	,,
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube, deld. rly. depôt.	
,, ,, ,, 6 in. sawn both sides landings	2 7	per ft. super. deld. rly. depôt	
,, 3 in. do.	1 9½	,,	,,

SLATES.

In.	in.	£ s. d.		
20×10 best blue Bangor		13 2 6	per 1200 or 1200 at ry. dep.	
20×12 ,, ,, ,,		13 17 6	,,	,,
20×10 best seconds	,,	12 15 0	,,	,,
20×12 ,, ,, ,,		13 10 0	,,	,,
16×8 best	,,	7 0 0	,,	,,
20×10 best blue Portmadoc		12 5 0	,,	,,
16×8 best blue Portmadoc		6 5 0	,,	,,
20×10 best Eureka unfading green		15 2 6	,,	,,
20×12 ,, ,,		17 3 6	,,	,,
18×10 ,, ,,		12 10 0	,,	,,
16×8 ,, ,,		10 5 0	,,	,,
20×10 permanent green		11 0 0	,,	,,
18×10 ,, ,,		9 5 0	,,	,,
16×8 ,, ,,		8 10 0	,,	,,

PRICES CURRENT (*Continued*).

TILES.

	s.	d.			
Best plain red roofing tiles	42	0	per 1,000, at rly. depôt.		
Hip and valley tiles	3	7	per doz.	,,	,,
Best Broseley tiles	50	0	per 1,000	,,	,,
Do. Ornamental Tiles	52	6	,,	,,	,,
Hip and valley tiles	4	0	per doz.	,,	,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57	6	per 1,000	,,	,,
Do. ornamental Do.	60	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	0	,,	,,	,,
Best Red or Mottled Staffordshire Do. (Peakes)	51	0	per 1,000	,,	,,
Do. Ornamental Do.	54	0	,,	,,	,,
Hip tiles	4	1	per doz.	,,	,,
Valley tiles	3	8	,,	,,	,,
Best "Rosemary" brand plain tiles	48	0	per 1,000	,,	,,
Do. Ornamental Do.	52	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	8	,,	,,	,,

WOOD.

	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	15	10	0	16	10	0
Deals: best 3 by 9	14	10	0	15	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best		
Battens: seconds	0	10	0	,,	,,	,,
2 in. by 4 in. and 2 in. by 6 in.	9	0	0	9	10	0
2 in. by 4½ in. and 2 in. by 5 in.	8	10	0	9	10	0
Foreign Sawn Boards—						
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.		
¾ in.	1	0	0	,,		
Fir timber: Best middling Danzig or Memel (average specification	At per load of 50 ft. 4	10	0	5	0	0
Seconds	4	5	0	4	10	0
Small timber (8 in. to 10 in.)	3	12	6	3	15	0
Small timber (6 in. to 8 in.)	3	0	0	3	10	0
Swedish balks	2	15	0	3	0	0
Pitch-pine timber (30 ft. average)	3	5	0	3	15	0

JOINERS' WOOD.	At per standard.					
White Sea: First yellow deals, 3 in. by 11 in.	23	0	0	24	0	0
3 in. by 9 in.	21	0	0	22	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	18	10	0
Second yellow deals, 3 in. by 11 in.	18	10	0	20	0	0
,, ,, 3 in. by 9 in.	17	10	0	19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0	14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	15	10	0	16	10	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0	22	10	0
Do. 3 in. by 9 in.	18	0	0	19	10	0
Battens	13	10	0	15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0	17	0	0
Do. 3 in. by 9 in.	14	10	0	16	0	0
Battens	11	0	0	12	10	0
Third yellow deals, 3 in. by 11 in.	13	10	0	14	0	0
Do. 3 in. by 9 in.	13	0	0	14	0	0
Battens	10	0	0	11	0	0
White Sea and Petersburg:						
First white deals, 3 in. by 11 in.	14	10	0	15	10	0
,, ,, 3 in. by 9 in.	13	10	0	14	10	0
Battens	11	0	0	12	0	0
Second white deals 3 in. by 11 in.	13	10	0	14	10	0
,, ,, ,, 3 in. by 9 in.	12	10	0	13	10	0
,, ,, ,, battens	9	10	0	10	10	0
Pitch-pine: deals	16	0	0	18	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes	33	0	0	upwards.		
Oddments	22	0	0	24	0	0
Seconds, regular sizes	24	10	0	26	10	0
Yellow Pine Oddments	20	0	0	22	0	0
Kauri Pine—Planks, per ft. cube	0	3	6	0	4	6
Danzig and Stettin Oak Logs—Large, per ft. cube	0	2	6	0	3	6
Small ,, ,,	0	2	3	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	7	0	0	8
¾ in. do. do.	0	0	6½	-	-	-
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0	0	9	0	0	11
Selected, Figury, per ft. sup. as inch	0	1	6	0	2	0
Dry Walnut, American, per ft. sup. as inch	0	0	10	0	1	0
Teak, per load	17	0	0	21	0	0
American Whitewood Planks—Per ft. cube	0	4	0	-	-	-
Prepared Flooring—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6	0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	1	6
1 in. by 7 in. white, planed and shot	0	11	6	0	13	6
1 in. by 7 in. white, planed and matched	0	12	0	0	14	0
1¼ in. by 7 in. white, planed and matched	0	14	6	0	16	6
¾ in. by 7 inch yellow matched and beaded or V-jointed boards	0	11	0	0	13	6
1 in. by 7 in. do. do. do.	0	14	0	0	18	0
¾ in. by 7 in. white do. do.	0	10	0	0	11	6
1 in. by 7 in. do. do. do.	0	11	6	0	13	6

6-in. at 6d. to 9d. per square less than 7-in.

PRICES CURRENT (*Continued*).

JOISTS, GIRDERS, &c.

	In London, or delivered. £	s.	d.	Railway Vans, per ton. £	s.	d.
Rolled Steel Joists, ordinary sections	6	5	0	7	5	0
Compound Girders ,, ,,	8	2	6	9	5	0
Angles, Tees and Channels, ordinary sections	7	17	6	8	17	6
Flitch Plates	8	5	0	8	15	0
Cast Iron Columns and Stanchions, including ordinary patterns	7	2	6	8	5	6

METALS.

IRON—	Per ton, in London. £	s.	d.	£	s.	d.
Common Bars	7	10	0	8	0	0
Staffordshire Crown Bars, good merchant quality	8	0	0	8	10	0
Staffordshire "Marked Bars"	10	10	0	-	-	-
Mild Steel Bars	8	15	0	9	5	0
Hoop Iron, basis price	9	0	0	9	5	0
,, ,, galvanised	16	0	0	-	-	-
(* And upwards, according to size and gauge.)						
Sheet Iron, Black.—						
Ordinary sizes to 20 g.	9	15	0	-	-	-
,, ,, to 24 g.	10	15	0	-	-	-
,, ,, to 26 g.	12	5	0	-	-	-
Sheet Iron, Galvanised, flat, ordinary quality—						
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12	15	0	-	-	-
,, ,, 22 g. and 24 g.	13	5	0	-	-	-
,, ,, 26 g.	14	5	0	-	-	-
Sheet Iron, Galvanised, flat, best quality:—						
Ordinary sizes to 20 g.	16	0	0	-	-	-
,, ,, 22 g. and 24 g.	16	10	0	-	-	-
,, ,, 26 g.	18	0	0	-	-	-
Galvanised Corrugated Sheets:—						
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12	15	0	-	-	-
,, ,, 22 g. and 24 g.	13	5	0	-	-	-
,, ,, 26 g.	14	0	0	-	-	-
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11	15	0	-	-	-
,, ,, 22 g. and 24 g.	12	15	0	-	-	-
,, ,, 26 g.	14	0	0	-	-	-
Cut nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	9	5	0	9	15	0

LEAD, &c.

	Per ton, in London. £	s.	d.	£	s.	d.
LEAD—Sheet, English, 3 lbs. & up.	14	5	0	-	-	-
Pipe in coils	14	15	0	-	-	-
Soil pipe	17	5	0	-	-	-
Compo Pipe	17	5	0	-	-	-
ZINC—Sheet—						
Vieille Montagne ton	27	5	0	-	-	-
Silesian	27	0	0	-	-	-
COPPER—						
Strong Sheet per lb.	0	0	10½	-	-	-
Thin ,,	0	0	11½	-	-	-
Copper nails ,,	0	0	11	-	-	-
BRASS—						
Strong Sheet ,,	0	0	10	-	-	-
Thin ,, ,,	0	0	11	-	-	-
TIN—English Ingots ,,	0	1	5	-	-	-
SOLDER—Plumbers' ,,	0	0	6½	-	-	-
Tinmen's ,,	0	0	8½	-	-	-
Blowpipe ,,	0	0	9½	-	-	-

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft.	delivered.
,, fourths	1¾d. ,,	,,
21 oz. thirds	3¾d. ,,	,,
,, fourths	2¾d. ,,	,,
26 oz. thirds	4d. ,,	,,
,, fourths	3¼d. ,,	,,
32 oz. thirds	5d. ,,	,,
,, fourths	4¼d. ,,	,,
Fluted sheet, 15 oz.	3d. ,,	,,
,, 21 oz.	4d. ,,	,,
¼ Hartley's Rolled Plate	1¾d. ,,	,,
⅜ ,, ,, ,,	2d. ,,	,,
½ ,, ,, ,,	2¼d. ,,	,,

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes or barrels	per gallon	0	2	2
,, ,, ,, in drums	,,	0	2	6
Boiled ,, ,, in pipes or barrels	,,	0	2	5
,, ,, ,, in drums	,,	0	2	9
Turpentine, in barrels	,,	0	3	6
,, in drums	,,	0	3	8
Genuine Ground English White Lead	per ton	20	10	0
Red Lead, Dry	,,	20	0	0
Best Linseed Oil Putty	per cwt.	0	8	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for Seats of Churches	0	14	0
Fine Elastic Carriage	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

APERGAVENNY.—For the erection of a pair of cottages, Richmond-road, for Mr. Rees Lewis. Mr. B. J. Francis, architect, Abergavenny:—
Thomas & Sons, Abergavenny* £460

ACTON.—For the erection of depot, stabling, and house, Horn-lane, for Messrs. Carter, Paterson & Co., Ltd., under the superintendence of Messrs. Wm. Eve & Sons, architects, of 10, Union-street, London, E.C.:—

Wiggs	£5,171	Brown	£4,872
Monk	4,986	Killby & Gayford	4,836
Perry Bros.	4,960	Patman & Fotheringham	4,773
Higgs	4,883	Harris & Wardrop	4,660
Downs	4,877	Watts Johnson*	4,357

BALLIDON (Derbyshire).—For the erection of farm buildings, for the Right Hon. the Earl of Mansfield. Messrs. W. Sugden & Sons, architects, Leek. Quantities by architects:—

Cornes & Sons	£2,385 0 0	Wm. Thorley	£1,870 12 1
Thos. Godwin	2,332 18 1	B. Buxton, Mayfield*	1,833 16 0
Smith & Son	1,921 13 0		

BOURNEMOUTH.—For the erection of two-story mullioned bay window, bathroom, and general decorations and repairs to Durrant House, Durrant-road, for Mr. A. Hedley. Mr. Philip Sturdy, architect:—

F. Hoare & Sons	£720 15 0	Miller & Sons*	£650 0 0
W. Hoare & Sons	675 11 9		

BRADFORD.—For widening Church Bank, for the Corporation. Mr. J. H. Cox, C.E., Town Hall, Bradford:—
W. H. Holroyd, Holme Top-lane £1,675

BRENTFORD.—For the erection of a free library, for the Urban District Council. Mr. Nowell Parr, Surveyor, Clifden House, Boston-road, Brentford:—

Warings, Ltd.	£5,280	W. Wisdom	£4,820
Godson & Son	5,190	Foster Bros.	4,788
Willis & Co.	5,154	W. Gaze	4,787
W. Brooking	5,150	Renshaw	4,693
Goddard & Co.	5,100	Dorey & Co., Brentford*	4,686
Braid, Pater	4,997	Gough & Co.	4,684
Nightingale	4,979		
A. & B. Hanson	4,967		

CAMBRIDGE.—For works of sewerage at Grantchester, for the Chesterton Rural District Council. Messrs. Waters & Worrall, engineers, Cambridge:—

Swann Bros.	£4,827 9 8	Rayner	£2,827 12 0
Willmott & Sons	3,620 0 0	Redhouse	2,769 0 0
Oak Building Co.	3,373 0 0	Flack, Russell-street, Cambridge*	2,765 10 3
Langley Bros.	3,263 18 7	Deards	2,650 0 0
Jones & Sons	2,954 17 6	Hinkins	2,382 0 0
Wallace & Innes	2,900 0 0	Roberts & Co.	2,235 14 6

HALIFAX.—For the erection of a house, Norland. Mr. Lister Coates, architect, Waterhouse-street, Halifax:—

Masonry and Bricklaying.

John Riley, Sowerby Bridge, near Halifax† £145 0

Carpentry and Joinery.

F. & E. Whittaker, Norland, near Sowerby Bridge 50 0

Plumbing and Glazing.

Clarence Firth, Luddendenfoot, via Manchester 14 10

Slating and Plastering.

Hill & Co., Greetland, near Halifax 30 0

† Labour only

[*See also next page.*

HASTINGS.—For additions to the fish-packing station, Rock-a-Nore, for the Corporation. Mr. P. H. Palmer, C.E., Town Hall, Hastings :—

Morton & Co., Hamilton Ironworks, Garston, Liverpool	£156 10

HIGH WYCOMBE (Bucks).—For the erection of new physical laboratory, &c., Royal Grammar School. Mr. Arthur Vernon, architect, 29, Cockspur-street, London, S.W., and High Wycombe, Bucks. :—

Hunt & Son*	£1,244 (including fittings).

HUGHENDEN (Bucks).—For the erection of additions to new stables, Hughenden Manor, for Mr. Coningsby Disraeli, M.P. Mr. Arthur Vernon, F.S.I., architect, 29, Cockspur-street, London, S.W., and High Wycombe, Bucks. :—

Nash & Sons	£2,197	H. Flint	£2,100
Webster & Cannon	2,150	G. H. Gibson*	2,068

KILLAMARSH.—For the erection of a church, Holbrook, for the Trustees. Mr. J. P. Earle, architect, Sheffield. Quantities by the architect :—

Drabble & Sons, Mosbrough*	£1,114

LLANDEGLA (Wales).—For the erection of a chapel. Mr. Wm. Moss, architect, 2, Temple-row, Wrexham :—

R. Roberts	£1,245	J. Harrison, Coed-poeth*	£1,180
S. Moss	1,200		
T. Williams	1,199		

ST. AUSTELL (Cornwall).—For the erection of two villas, for Mr. W. Rowse. Mr. J. Mutton, architect, Charlestown, St. Austell :—

Carpentry.—J. F. Lakeman, St. Austell *Masonry.*—John Jacob, St. Austell [Architect's estimate, £610.]	£620

SANDBACH.—For the erection of an engine-house at central shops, for the Sandbach Co-operative Society, Ltd. Mr. A. Price, architect, Sandbach. Quantities by the architect :—

Burchall Bros.	£223	J. Mellor, Elworth*	£196
Proctor, Major, & Mason	215		

SOUTHAMPTON.—For the erection of the superstructure of the electricity supply station, Western Shore, for the Corporation. Mr. J. A. Crowther, Borough Engineer, Municipal-buildings, Southampton :—

F. Osman	£14,500	Hughes & Stirling	£11,223
Dyer & Sons	12,500	Stevens & Co., Southampton*	11,138
Mussellwhite & Sons	12,390		
Jenkins & Sons, Ltd.	11,664		

SOUTHEND.—For internal painting and decorative works at the Victoria Hospital, Southend-on-Sea. Messrs. Burles & Harris, architects and surveyors, Southend-on-Sea :—

		Days.
Choat & Son	£249 0	78
Smith & Chambers	212 0	43
W. Dudley	195 0	30
Drew & Co.	179 15	116
Fuller & Co.	173 12	38
J. Westwood	165 0	51
Coombes, Southend*	152 8	57
Davis & Leaney	150 0	74
Wager & Blaskett	143 0	31
T. Horswill	142 10	63

SOUTHEND.—For eight houses, Camper-road, Southend-on-Sea, for Mr. T. Dowsett, J.P. Messrs. Burles & Harris, architects and surveyors, Southend-on-Sea :—

Smith & Chambers	£5,555	Whur & Campkin	£4,272
F. E. Woodhams	5,200	C. Wingrave	4,056
R. Elvy	4,846	Dupont & Co., Southend*	3,950
W. E. Davey	4,440		
J. Dowsett	4,380		

TREDEGAR (Mon.).—For the erection of a hospital for the trustees of the Tredegar Park Cottage Hospital. Mr. E. A. Johnson, architect, Merthyr and Abergavenny. Quantities by architect :—

Lattey & Co., Ltd.	£3,429 19	E. C. Jordan	£2,870 0
Lloyd & Tape	3,180 0	D. J. Vaughan, Tredegar*	2,784 0
J. Newcombe	3,193 0	Lewis & Co.	2,657 0
Thomas & Sons	3,150 0		

WALTHAMSTOW.—For altering three private houses into shops in St. John's-road. Mr. Henry Brodey, architect and surveyor, 259, High-street, Walthamstow :—

J. Coste	£315 10 6	W. B. Mann	£254 7 0
J. Root	264 12 0	F. Collins*	235 0 0

WHITSTABLE.—For rebuilding the Shack Inn, for Messrs. Shepherd, Neame, & Co., Faversham. Mr. A. A. Kemp, surveyor, Whitstable :—

Inages	£786 0	Camburn	£597 0
Fulier	760 0	Porter*	548 10

WINFRITH (near Wool, Dorset).—For the erection of a gardener's cottage for Mr. Edward Hughes. Mr. Philip Sturdy, architect :—

Abel Harvey	£321 9	J. Miller, Osmington*	£252 10

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